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Harvest Estimates for Selected Marine Sport Fisheries in Southeast Alaska During 2002

by

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and

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Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Department of Fish and Game	ADF&G
Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

Creel surveys of the Juneau, Ketchikan, and Sitka marine sport fisheries for Chinook salmon *Oncorhynchus tshawytscha* were conducted during 2002. The estimated harvest of Chinook salmon was 38,559 in the combined Ketchikan, Sitka, and Juneau boat sport fisheries. Harvests of Chinook salmon were 46% above the long-term average (1984 and 1986–2001) in the Ketchikan fishery, 5% below average (1983–2001) in the Juneau fishery, and 71% above the long-term average (1987–88 and 1992–2001) in the Sitka fishery. Hatcheries in Alaska provided 28% of the Chinook salmon harvested while hatcheries in British Columbia, Washington, and Oregon provided about 15% of the Chinook harvested. Alaska hatcheries provided 64% of the Chinook salmon harvested in Ketchikan, 60% in Juneau, and 10% in Sitka. Non-Alaskan hatcheries accounted for 20% of the Chinook salmon harvested in Sitka, 2% in Juneau, and 6% in Ketchikan. Coded wire tag sampling in the Petersburg, Wrangell, Craig/Klawock, Gustavus, and Elfin Cove fisheries revealed that Chinook salmon from Alaska hatcheries contributed about 40%, 0%, 2%, 38%, and 0% of the harvest, respectively.

An estimated 106,312 coho salmon *Oncorhynchus kisutch*, 51,545 pink salmon *Oncorhynchus gorbuscha*, 47,441 Pacific halibut *Hippoglossus stenolepis*, and 18,335 rockfish *Sebastes* species, were also harvested in the combined Ketchikan, Juneau, and Sitka marine boat fisheries. Hatcheries provided 35%, 18% and 20% of the coho salmon harvested in Ketchikan, Juneau, and Sitka, respectively. Pacific halibut harvests of 6,172 in Juneau and 7,009 in Ketchikan were well below average, but the Sitka harvest of 34,260 was the highest recorded and 97% higher than the long-term average. Shellfish effort was above average in the Juneau and Ketchikan fisheries. Dungeness crab *Cancer magister* harvest was well below average in Juneau but above average in Ketchikan.

Key words: creel survey, angler effort and harvest, harvest per unit effort, age composition, length-at-age estimation, round weight, boat sport fishery, hatchery, enhancement, coded wire tag, Chinook salmon, *Oncorhynchus tshawytscha*, coho salmon, *Oncorhynchus kisutch*, salmon, *Oncorhynchus*, Pacific halibut, *Hippoglossus stenolepis*, Dolly Varden, *Salvelinus malma*, lingcod, *Ophiodon elongatus,* rockfish, *Sebastes* species, Dungeness crab, *Cancer magister*, Tanner crab, *Chionoecetes* species, king crab, *Paralithodes* species, shrimp, *Pandalus* species, Juneau, Ketchikan, Sitka, Petersburg, Wrangell, Craig, Klawock, Yakutat, Gustavus, Elfin Cove, Southeast Alaska

INTRODUCTION

The waters of Southeast Alaska support commercial, sport, personal use, and subsistence fisheries for a variety of salmonid, bottomfish, and shellfish species. In terms of effort, the largest sport fishery in Southeast Alaska is the Juneau marine boat fishery, but other important marine boat sport fisheries occur around Ketchikan, Sitka, Petersburg, Wrangell, Craig/Klawock, Yakutat, Gustavus and Haines (Figure 1).

Data on sport harvests of important fish species in Southeast Alaska have been collected both by mail surveys and by various onsite creel surveys. The Statewide Harvest Survey (SWHS) is a mail survey that has provided annual estimates of sport effort and harvest by area since 1977 (Howe et al. 2001). This statewide survey has been an economical means of comprehensively monitoring often remote sport fisheries, and the estimates are the official regional and statewide sport harvest numbers used for postseason management and decision making. SWHS estimates cannot be used directly for inseason management because estimates for a given year are not available until the following summer.

Estimates from onsite creel surveys can be used for inseason management and can also be used to gather a variety of other biological and fishery performance data. Creel surveys, however, are relatively expensive and usually less comprehensive than the SWHS. For instance, it is virtually impossible to survey all access points into the sport fishery for Chinook salmon *Oncorhynchus tshawytscha* in Southeast Alaska, which remains open year-round in nearly all marine waters. In fisheries where comparisons of harvest estimates from the SWHS and onsite creel

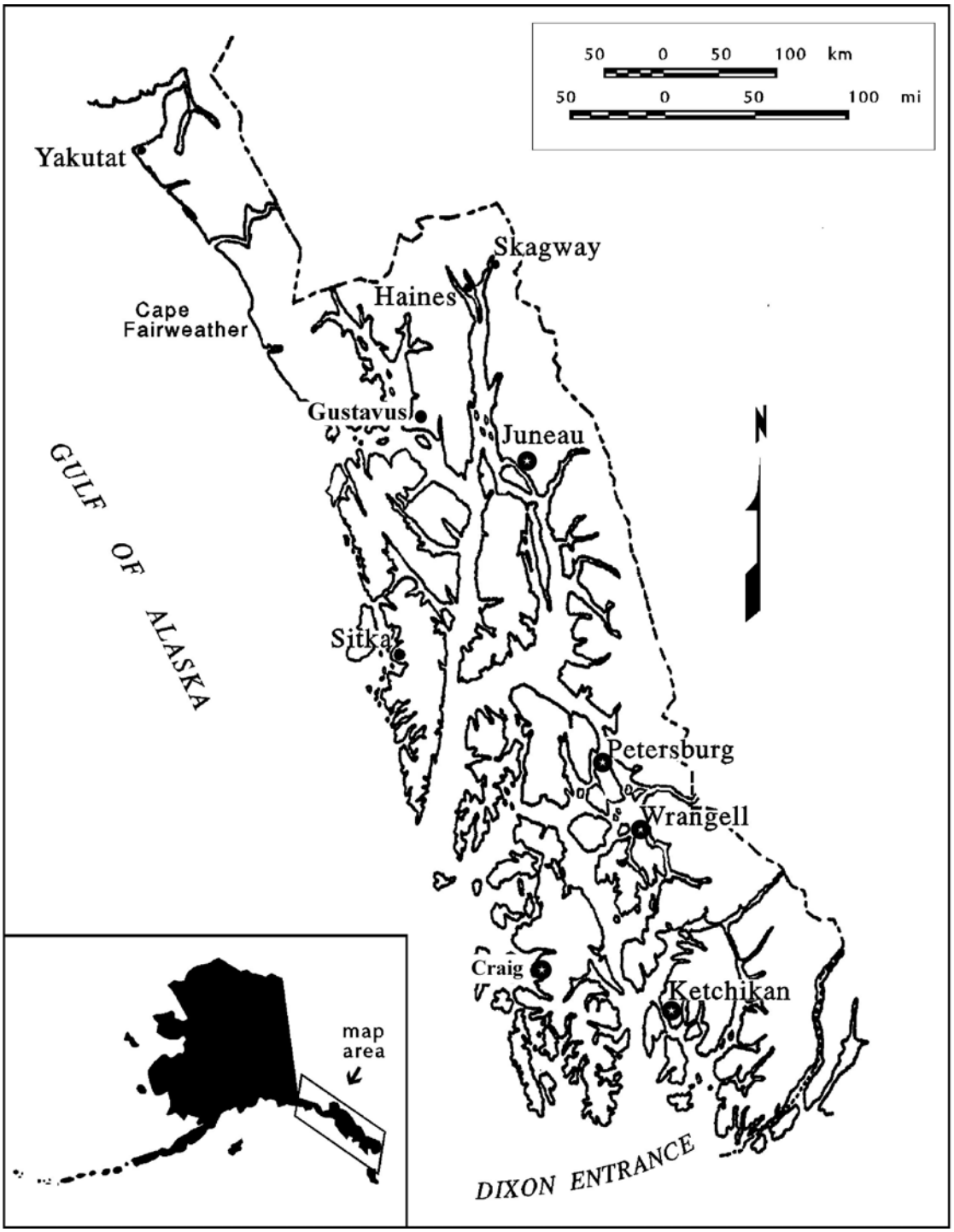

Figure 1.–Location of Yakutat, Gustavus, Elfin Cove, Juneau, Sitka, Petersburg, Wrangell, Ketchikan, Craig, and Klawock in Southeast Alaska.

surveys are possible, the two surveys have shown very similar results (Mills and Howe 1992).

Expansion of the onsite creel survey program in Southeast Alaska was necessary beginning in 1992 to monitor sport harvests of Chinook salmon on an inseason basis. The Alaska Board of Fisheries allocated the Pacific Salmon Treaty catch quota for Chinook salmon in Southeast Alaska between the sport and commercial fisheries in March of 1992. They also passed a Chinook salmon management plan for the sport fishery in Southeast Alaska, which required inseason monitoring of the sport fishery to ensure the allocation was not exceeded.

Creel surveys or catch sample programs were needed in the Ketchikan, Craig, Petersburg, Wrangell, Sitka, Glacier Bay, and Juneau boat fisheries during the major portion of the fishery for Chinook salmon in order to monitor the entire Southeast Alaska Chinook salmon fishery with adequate precision to ensure compliance with the sport fishery allocation. In 2001, 96% of the total sport harvest of Chinook salmon of Southeast Alaska occurred in the SWHS areas represented by these fisheries (Walker et al. 2003). Sport harvests in other SWHS areas (Haines/Skagway and Yakutat) were determined to be too small or too dispersed to be effectively monitored with onsite programs, although a spring Chinook survey is ongoing in Haines (Ericksen 2001).

Estimates of the number of Alaska hatchery Chinook salmon taken were also necessary since most of this harvest does not count toward the sport fishery allocation. Sampling of sport-harvested Chinook salmon for coded wire tags (CWT's) by creel samplers was required to provide this information, as a portion of all hatchery releases of Chinook salmon in Southeast Alaska are coded wire tagged. Several terminal sport fisheries for Alaska hatchery fish in the Petersburg and Juneau areas were not monitored with creel surveys, as these harvests do not count toward the sport allocation, and post-season estimates from the SWHS are adequate to document harvests within these fisheries.

Inseason estimates of the harvest of Chinook salmon for all of Southeast Alaska were obtained by combining information from past SWHS and onsite creel surveys. This report, however, will only present information from the onsite creel surveys conducted in 2002, because current estimates of total harvests will be revised when final SWHS estimates are completed.

Creel survey information from the marine boat sport fisheries is used for a variety of other management and reporting purposes. Coho salmon *O. kisutch* harvests by the boat sport fisheries are also of special interest, as coho salmon management has continued to be a high priority within the region. Harvest per unit effort (HPUE) data for coho salmon in marine boat recreational fisheries, along with HPUE data from commercial troll and net fisheries, are used to monitor the relative abundance and migratory patterns of coho salmon (see Shaul 1998). Analyses of CWT data from coho salmon harvested in these sport fisheries are used for determinations of stock composition (e.g.McPherson et al. 1998).

Creel survey statistics and estimated average weights of sport caught Pacific halibut *Hippoglossus stenolepis* in Southeast Alaska are reported to the International Pacific Halibut Commission (IPHC) on an annual basis as in White and Jaenicke (*Unpublished*). This information has also been provided to the North Pacific Fisheries Management Council during their consideration of proposed Individual Fishing Quotas (IFQ's) for sport charter fisheries.

The personal use or sport harvest of shellfish is a very important activity for both residents of Southeast Alaska and visitors to the region. Shellfish harvest information was gathered so that the Alaska Department of Fish and Game (ADF&G), in conjunction with the Alaska Board of Fisheries, will have the information necessary to effectively manage these fisheries. Data on the personal use and sport harvest of shellfish in Southeast Alaska have been gathered from onsite creel surveys since 1988.

This report presents the findings of creel surveys of marine boat sport fisheries conducted in 2002 by the Division of Sport Fish of ADF&G in the Ketchikan, Juneau, and Sitka areas. Also covered are the results from CWT sampling programs conducted at Petersburg, Wrangell, Craig, and Gustavus, and Elfin Cove. In 2002, additional CWT sampling in the nearby town of Klawock

was used to supplement our Craig sampling program. Results from creel surveys in the Haines area and other sport fisheries in Southeast Alaska are presented in other ADF&G Fishery Data Series reports (e.g., White 2003; Ericksen 2001).

REGULATIONS

Beginning 19 April, filleting, mutilating, or heading sport-caught Chinook salmon, coho salmon, and lingcod was prohibited by emergency order (E.O.) at ports sampled by the creel program until marine sport boats reached the dock (E.O. #1-03-02). This regulation was enacted to increase the number of salmon that could be sampled for CWTs and lingcod that could be sampled for length and sex information.

The bag (and possession) limit for Chinook salmon in marine waters was reduced from 2 to 1 ≥28″ (E.O. #1-01-02) from 1 January through 31 December 2002. The annual limit of 4 Chinook salmon ≥28″ for nonresidents was also decreased to 3. On April 27 the bag and possession limit was increased from 1 to 2 Chinook salmon for resident anglers, while the regulations for nonresidents did not change (E.O. #1-04-02). These regulation changes were due to changes in estimated Chinook abundance for the region. Charter vessel operators and crew members were also prohibited from retaining Chinook salmon while clients were on board.

The following marine terminal areas (i.e., areas near hatcheries or hatchery release sites) were regulated by emergency orders to harvest surplus hatchery-produced Chinook salmon in 2002:

- E.O.#1-08-02 increased the Chinook salmon bag and possession limit to 4 ≥28″ and 8 <28″ in Wrangell Narrows terminal area near Petersburg, 1 June through 1 August.
- E.O.#1-09-02 increased the Chinook salmon bag and possession limit to 4 Chinook salmon of any size in terminal areas near Juneau, 8 June through 31 August.
- E.O.#1-10-02 increased the Chinook salmon bag and possession limit to 12 Chinook of any size in two terminal areas near Ketchikan, 10 June through 31 July.
- E.O.#1-11-02 increased the Chinook salmon bag and possession limit to 2 ≥28″ and 1 <28″ for non-guided residents, and to 1 ≥28″ and 1 <28″, for guided and nonresident anglers in terminal areas near Skagway, 13 June through 31 August.
- E.O.#1-15-02 increased Chinook bag and possession limit to 4 Chinook salmon, of which no more than 2 could be ≥28″, at the Silver Bay and Hidden Falls terminal areas near Sitka, 21 June through 31 July.

Nonresident annual limits for Chinook salmon ≥28″ did not apply to fish caught in the Wrangell Narrows, Juneau, and Ketchikan terminal areas. Bag limits for salmon species other than Chinook salmon were 6 fish per day, 12 in possession, for fish 16″ or more in length.

The Pacific halibut bag limit was 2 fish per day, 4 in possession. The season for lingcod opened on 16 May. The bag limit for lingcod *Ophiodon elongatus* was 2 per day, 4 in possession until E.O. #1-05-02 closed Northern Southeast Alaska and Prince of Wales Island to the harvest of lingcod 16 June through 15 August, and then changed the bag and possession limits to 1 per day and 2 in possession in these areas from 16 May to 15 June and 16 August to 30 November. This E.O. also set minimum and maximum size limits in these areas to 30″ and 40″, respectively. Guided and nonresident anglers were also required to land lingcod by hand or net (gaffing not permitted) to minimize mortality of released fish. E.O. #1-06-02 reduced the bag and possession limit in the Yakutat/Icy Bay areas to 1 per day, 2 in possession from 16 May to 30 November and set the minimum and maximum sizes to 32″ and 42″, respectively, for guided and nonresident anglers. Guided and nonresident anglers were also required to land lingcod by hand or net. E.O. #1-07-02 set the bag and possession limits for Southern Southeast Alaska at 1 lingcod per day and 2 in possession 16 May through 30 November. Anglers were limited to 5 pelagic rockfish *Sebastes* species per day, 10 in possession, and 5 non-pelagic rockfish, 10 in possession. Only 2 of the non-pelagic rockfish per day (4 in possession) could be yelloweye rockfish *S. ruberrimus*. Areas adjacent to Ketchikan and Sitka were further restricted to a

non-pelagic rockfish bag and possession limit of 3 fish per day, only 1 of which could be a yelloweye rockfish.

Sport, personal use, and subsistence regulations for the harvest of crab in Southeast Alaska have been summarized by Suchanek and Bingham (1989 and 1991). Personal use harvests of red and blue king crab *Paralithodes* in the commercial fishery subdistrict 11-A near Juneau opened on July 1. The daily bag and possession limit was 2 male crab with a 7″ minimum carapace and a harvest permit was required which included an annual limit of 20 red king crab per household. A bag and possession limit of 6 male king crab was in effect elsewhere in Southeast Alaska with local exceptions of 3 male king crab in commercial subdistricts 12-B and 15-C near Juneau.

OBJECTIVES

The primary goals of the 2002 Southeast Alaska marine boat sport fishery surveys were to obtain: (1) inseason and post-season estimates of the regionwide harvest of Chinook salmon; (2) an estimate of the regionwide harvest of Chinook salmon of Alaska hatchery origin; (3) post-season estimates of the harvest of coho salmon in Juneau, Ketchikan and Sitka; and (4) estimates of the coho salmon harvests of Alaskan hatchery origin in Juneau, Ketchikan and Sitka. To help measure program performance and achieve project goals, the following objectives were identified:

1. Estimate the total sport harvest of Chinook salmon landed in the Ketchikan, Sitka and Juneau marine boat sport fisheries from 29 April to 29 September such that each individual estimate for the entire season was within ±20% of the true value 90% of the time. Additionally, three inseason projections of the total sport harvest of Chinook salmon in all of Southeast Alaska were made: (a) prior to the commercial troll opening in early July; (b) prior to the troll opening in August; and (c) at the end of the marine sport fishery survey period in mid October.
2. Estimate the contribution of Alaska hatchery Chinook salmon by coded wire tag lot to the above sport fisheries, such that the contribution estimate in relative terms[1] for each individual fishery was within ±15 percentage points of the true value 90% of the time.
3. Estimate the total sport harvest of coho salmon landed in the Ketchikan, Sitka, and Juneau marine boat sport fisheries from 29 April to 29 September, such that each individual estimate for the entire season was within ±20% of the true value 90% of the time.
4. Estimate the contribution of Alaska hatchery coho salmon by coded wire tag lot to the above sport fisheries, such that the contribution estimate in relative terms for each individual fishery was within ±15 percentage points of the true value 90% of the time.
5. Estimate the relative contribution of Alaska hatchery Chinook salmon by coded wire tag lot to the following marine boat sport fisheries during the noted time periods:
   a. Craig/Klawock, 6 May–15 September
   b. Petersburg, 6 May–7 July
   c. Wrangell, 29 April–30 June
   d. Gustavus, 3 June–15 September

   such that the total relative contribution estimate was within ±15 percentage points of the true values 90% of the time.
6. Estimate the relative contribution of Alaska hatchery coho salmon by coded wire tag lot to the Craig/Klawock marine boat sport fishery from 6 May to 15 September and the Gustavus marine boat sport fishery from 3 June to 15 September, such that the total relative contribution estimate was within ±15 percentage points of the true values 90% of the time.
7. Estimate the harvest of wild mature Chinook salmon of wild stocks in the Juneau marine boat spring fishery (29 April–1 July), such that the estimate was within ±20% of the true value 90% of the time.
8. Estimate the age composition of the marine boat spring Chinook salmon harvest from 29 April to 1 July in Ketchikan and Juneau such

[1] Contributions in relative terms, equals the contribution estimate divided by the total harvest.

that the estimates were within ±5 percentage points of the true value 90% of the time.

9. Estimate the weighted mean net weight of Pacific halibut harvested in Sitka, Juneau, Ketchikan, Craig/Klawock and Gustavus such that, with 90% confidence, the estimate is within ±10% of the true value; where the weights are the proportions of halibut harvested by user group (private vs. charter) as estimated by the statewide harvest survey.
10. Estimate the average round weight of lingcod harvested in Craig/Klawock, Sitka, and Ketchikan, such that, with 90% confidence, the overall mean of fish taken by chartered anglers is within ±5 of the true value and the overall mean of fish taken by non-chartered anglers is within ±10% of the true value.
11. Estimate the sport harvest of pink salmon *Oncorhynchus gorbuscha*, Pacific halibut, lingcod, and rockfish (all species combined) in Juneau, Sitka, and Ketchikan such that the estimates for each were within ±20% of the true value 90% of the time.
12. Estimate sport angler effort for both salmon and bottomfish to within ±25% of the true value 90% of the time in Ketchikan, Juneau, and Sitka.
13. Estimate the shellfish effort and harvest of Dungeness crab *Cancer magister* (in both Juneau and Ketchikan), shrimp (Ketchikan only), and king crab (Juneau only) such that the estimates were within ±25% of the true value 90% of the time.

TASKS

In addition to meeting the primary objectives for monitoring the Chinook and coho salmon fisheries (discussed above), there were a number of tasks that addressed secondary data needs identified by research or management staff. To fulfill these data needs, additional tasks in 2002 included:

1. Collect baseline age and maturity data from Chinook salmon harvested from 29 April to 1 July in Ketchikan, Petersburg, Wrangell, and Gustavus;
2. Collect age information from Chinook salmon in Juneau and Ketchikan from 2 July to 29 September;
3. Collect length data from Pacific halibut harvested in Petersburg from 6 May to 7 July and in Wrangell from 29 April to 30 June and from lingcod in Gustavus from 3 June to 15 September;
4. Collect Dolly Varden *Salvelinus malma* harvest information from anglers in Juneau;
5. Compute HPUE's for coho salmon from both catch sample and creel survey data for informational use by the public and fishery managers;
6. Collect the number of fish released (by species) to estimate total catch; and
7. Sample sport harvests of Chinook salmon at False Outer Point (a.k.a. "Picnic Cove"—a Juneau roadside fishery) for coded wire tags from mid-April through the end of May to increase recoveries of tagged Taku River Chinook salmon.

METHODS

Procedures for obtaining estimates associated with each of the study objectives were similar for each of the surveyed locations. The following sections detail procedures that were common to multiple surveys. Site-specific differences in procedures are outlined in later sections of this report.

ONSITE CREEL SURVEY ANGLER EFFORT, CATCH, AND HARVEST ESTIMATES

Direct expansion creel surveys were conducted of the Ketchikan, Sitka, and Juneau marine boat sport fisheries. The harvest of Chinook salmon by sport anglers was estimated from information collected via stratified random multistage sample surveys. Strata were defined according to unique combinations of biweekly periods, type of day (e.g., weekday vs. weekend-holiday), time of day (early vs. late) and, in some instances, derby versus non-derby periods.

Two general sampling designs were used within each stratum. For the Ketchikan and Juneau surveys, a three-stage sample survey was

conducted. Within any stratum for these two surveys, days to sample represented the first sampling stage and were selected at random without replacement (WOR). The various access locations at which marine boat sport anglers land their harvested fish represented the second sampling stage. As such, within any selected day within each stratum, at least two harbors were selected at random WOR for surveying. During each sampled day, a creel technician attempted to interview all exiting boat-parties[1] at each of the selected access locations during the sampled days within each stratum. If all boat-parties could not be interviewed, any missed boat-parties were counted. Boat-parties represented the third sampling stage in these three-stage surveys.

A four-stage sample survey was conducted at Sitka. For this survey, access locations to sample represented the first sampling stage, with days within each stratum at each sampled location representing the second stage sampling units. Periods within the sampling day represented the third sampling stage. At some sites and for some strata, only one sampling period existed; for these strata at any sampled day-location combination, the entire period was sampled. Minimally, two periods were sampled for each day-location combination for strata with more than one period per sampling day. Finally, boat-parties to interview represented the fourth sampling stage units in this survey.

The sampling designs for the surveys conducted in Juneau, Ketchikan, and Sitka were essentially equivalent to the surveys conducted in previous years at these locations (see Hubartt et al. 1993-2002). Since 1995, the "type of day" stratum and the definition of sampling day were modified in Sitka so that unbiased estimates of angler effort, catch, and harvest could be obtained in the most efficient manner possible.

Data collected from each interviewed boat-party included number of rods fished, hours fished, trip type (charter or non-charter), number of days fished in trip, location fished, target (e.g., salmon, bottomfish, crab or shrimp), and number of fish kept and/or released by species. Crab effort (boat-days fished and number of pots or rings fished) and harvest was recorded in Juneau and Ketchikan. In Ketchikan, numbers of shrimp harvested were also recorded in multiples of 10. All data recording procedures were detailed in site-specific Creel Technician Manuals, and computer data files and analysis programs are listed in Appendix B1.

Estimates of harvested Chinook salmon at each of the three surveyed marine boat sport fisheries were calculated according to standard direct expansion equations for stratified multistage sampling designs (Hubartt et al. 2000; Bernard et al. 1998). Mean harvest of boat-parties interviewed during a sample was expanded by the number of boat-parties counted exiting the fishery during each sample to obtain estimates for each sample. Means across sample periods were similarly expanded by the number of periods within a sampling day to obtain the estimates at a sampled access location for the four-stage surveys. Means across days within a sampled location were then expanded by the number of possible days, to obtain the location estimate of catch, effort, or harvest for the four-stage surveys. Finally, across-location means were expanded by the number of access locations in a stratum to obtain the stratum estimates. Across-stratum estimates of harvest were obtained by summation across strata. Estimates were obtained similarly for the three-stage designs, with appropriate reordering of calculations.

Estimates of harvest of other species by surveyed boat anglers were calculated similarly. Additionally, estimates of the total catch (caught and released as well as caught and kept) of all species of interest were calculated in a similar manner.

The assumptions necessary for estimates of angler effort, catch, and harvest from these surveys to be unbiased were:

1. Anglers accurately reported their hours of fishing effort and the number by species of fish harvested and released.

No significant number of boat-parties returned between evening civil twilight (i.e., one-half hour after sunset) and the beginning of early-day surveys, or at access locations other than those

[1] A boat-party is defined as all sport anglers from one boat exiting a fishery at an access location.

surveyed (this assumption was violated in Ketchikan from 1997 through 2001 because major access locations, either Clover Pass or Salmon Falls, refused access to staff).

Anglers accurately reported the number of rods fished during the period fished so that effort (rod-hours) and HPUE could be calculated correctly (this assumes that if a boat returned with three anglers and two of them fished for three hours and one fished for two hours, both combinations of rods and hours were recorded as two rods for three hours and one rod for two hours and not as three rods for three hours).

HATCHERY AND TAGGED WILD STOCK CONTRIBUTION ESTIMATES

Survey technicians attempted to inspect each harvested Chinook and coho salmon for a missing adipose fin indicating the probable presence of an internal CWT in both creel and catch sampling ports. Catches of Chinook salmon and coho salmon checked for clipped adipose fins were recorded as "sampled," while catches not checked were recorded as "not sampled". Numbers of Chinook and coho salmon inspected for a clipped adipose fin were recorded, and heads from salmon with clipped adipose fins were collected and identified with a uniquely numbered cinch strap. These heads were forwarded to the ADF&G Commercial Fisheries (CF) Division Mark Tag and Age Laboratory in Juneau for eventual dissection, tag removal, and decoding.

Information from the sampling programs as well as the coastwide CWT database was used to estimate the contributions of both Alaskan and non-Alaskan hatchery Chinook salmon according to procedures described by Bernard and Clark (1996). Since not all hatchery releases from Oregon, Washington, and Idaho are tagged, the estimates of non-Alaskan contributions should be considered as minimal estimates. In addition, contributions of wild tagged stocks were also estimated after obtaining the marked fraction (θ). In some instances, wild stock marked fractions were not obtained, and therefore tags were only expanded by the sampling fraction.

The contribution of Chinook and coho salmon with a particular tag code to the marine fisheries surveyed was estimated using procedures outlined in Hubartt et al. (2000), which essentially followed the approach proposed by Bernard and Clark (1996). One of the following conditions must be met for unbiased estimates of contributions of CWT stocks to the harvest: relative contributions of different stocks of salmon associated with a CWT release lot to the harvest did not vary appreciably within a biweekly period or fish were sampled proportionally throughout the biweekly period. Because both conditions were essentially met, estimates of CWT contributions should be unbiased.

RELATIVE CONTRIBUTION ESTIMATES

Technicians sampled for clipped adipose fins on Chinook and coho salmon taken by boat parties returning to Wrangell harbors from 29 April through 30 June, Petersburg harbors from 6 May through 7 July, Craig and Klawock harbors from 6 May through 15 September, and Gustavus from 1 June through 15 September. Sampling effort was continued in Klawock in 2002 to increase sampling rates for the rapidly growing fishery near Craig on the west coast of Prince of Wales Island. Some additional sampling for adipose-clipped fish was also conducted in Ketchikan from 22 May to 29 September, in Sitka from 20 May to 30 August, and in Juneau from 29 April through 15 September. Specific equations for estimating the relative contributions of hatchery stocks in Wrangell, Petersburg, and Craig/ Klawock are detailed in Hubartt et al. (2000).

ESTIMATES OF CHINOOK SALMON AGE COMPOSITION AND MEAN LENGTH-AT-AGE

As time permitted, harvested Chinook salmon were sampled for scales for age determination in Juneau, Ketchikan, Petersburg, and Wrangell. Scales were not taken in Sitka or Craig/Klawock, since analysis of scale and CWT data from prior years had shown that Chinook salmon landed in these fisheries were from a great variety of stocks of primarily non-Alaskan origin (Hubartt et al. 2001). Chinook salmon landed in the four fisheries sampled are believed to be primarily from local Chinook stocks (especially those caught in spring fisheries).

Four scales were taken from the preferred area (Welander 1940 and INPFC 1958) of each

Chinook salmon sampled. Scales were then mounted on gum cards, and impressions were made in cellulose acetate (Clutter and Whitesel 1956). The ages were determined by reading the scales using procedures from Olsen (1995). Lengths in millimeters (tip of snout to fork of tail) of these Chinook salmon were also recorded.

For the estimation of age composition, all data collected through 1 July (i.e., spring data) from harvested Chinook salmon within each of these fisheries were treated as one sample (i.e., ignoring internal stratification and sampling stages). Data from 2 July through 29 September (i.e. summer data) in Juneau and Ketchikan as well as data from the 3-day Juneau Golden North Salmon Derby were treated as additional samples. Age composition estimates were calculated from the sample data using the procedures outlined in Cochran (1977). Estimates of mean length by age group of Chinook salmon sampled from the harvest were calculated following procedures outlined by Sokal and Rohlf (1981). All aged Chinook salmon from samples detailed above were pooled in an unweighted fashion to obtain length-at-age statistics.

The following assumptions were necessary for unbiased estimates of length-at-age and age composition: length-at-age and age composition did not vary substantially within the sampling season, or sampling was proportional to harvest throughout the season; and measured fish were representative of the entire harvest.

ESTIMATES OF MATURITY COMPOSITION OF CHINOOK SALMON

Samplers evaluated the maturity status of each Chinook salmon reported harvested in the Juneau fishery through 1 July. The 3 maturity classes were: 1) mature; 2) immature; and 3) unknown. Fish not evaluated for maturity were noted as such in the data and treated the same as the unknowns.

The biweekly harvest of mature Chinook salmon was subsequently estimated by:

$$\hat{C} = \hat{H}\hat{p} \qquad (1)$$

with variance estimated as per Goodman (1960):

$$\hat{V}[\hat{C}] = \hat{H}^2 V[\hat{p}] + \hat{p}^2 \hat{V}[\hat{H}] - \hat{V}[\hat{H}]\hat{V}[\hat{p}] \qquad (2)$$

where p is the proportion of fish in a given biweek with determined maturity status of mature (unknown or unevaluated fish ignored), and H is the estimated biweekly harvest of Chinook salmon from the creel survey.

For each biweekly estimate of Chinook harvest in Juneau, the hatchery contribution was also computed using methods described in Bernard and Clark (1996). Since maturity status of tagged Chinook was also noted on the CWT recovery form, the mature proportion of the CWT recoveries was applied to the total hatchery contribution as above. This result was then subtracted from the biweekly harvest of mature Chinook salmon calculated above to obtain the harvest of wild mature Chinook salmon. The variance of this estimate was conservatively estimated by summing the variances of both the total mature and hatchery biweekly harvests.

Maturity of Chinook salmon taken through 1 July was also evaluated in the Ketchikan, Wrangell, and Petersburg fisheries. These maturity data were analyzed by the same methods used to summarize age composition.

AVERAGE WEIGHT OF PACIFIC HALIBUT AND LINGCOD

In pursuit of Objective 9, Pacific halibut landed by boat parties within all surveyed fisheries were sampled for length in order to estimate the average net weight.

Optimum relative sampling distributions were calculated for charter and non-charter groups using the optimum allocation formula for stratified sampling (Thompson 1992). Mean net weights and standard deviations were computed for each group within each port from 2001 biological sampling data. Stratum weights were based on group specific harvests reported in the 2000 SWHS. Since the ports of Petersburg and Wrangell are in the same SWHS area, we elected to estimate mean weight for these two fisheries combined. A template was designed incorporating the mean net weights, standard deviations, and harvests (for optimum sample proportions) for

each port and user group. The overall minimum sample size for each port (combined user groups) was determined by solving (using EXCEL Goal Seek) for a relative precision of ±10% for non-chartered anglers and ±5% for chartered anglers at the 90 percent level of confidence. The final result was a minimum target sample size for each user group within each port.

In order to collect at least the minimum sample sizes within each group and port, a systematic sampling protocol was employed. Days were subsampled and the number of days to sample over the season was based on the sampling rate tabulated from 2001 interview data.

Subsampling occurred every 3rd day in Juneau, Ketchikan and Petersburg/Wrangell; every 2nd day in Sitka and Craig; and every 5th day in Yakutat. The starting day in which to start sampling was randomly selected (e.g., a number between 1 and 3 for Juneau, 1 and 2 for Sitka, etc.) for the first week, and continued according to the systematic schedule for each port noted above. If the next selected sample day happened to fall on (1) a non-work day, (2) a day that was only being catch sampled (Juneau, Sitka, and Ketchikan), or (3) a designated derby sampling day[1], the closest "standard day" worked was selected for sampling (with a "coin flip" used to resolve ties). In those instances noted above, only the day to conduct sampling was adjusted forward—counts to the next subsample day were not. In ports where there were both creel and catch sampling programs (Juneau, Sitka, and Ketchikan) only creel samplers reprioritized their sampling goals on the designated days. Catch samplers maintained their assigned priorities for salmon. Data collected on designated sampling days were denoted on the mark-sense form to maintain them as a separate sample (not part of the regular biological sampling program).

There was variation in the number of charter and non-charter harvested halibut samplers might encounter during interviews on designated days. Therefore, the sampling rate used was one which would exceed the minimum sample size goals. This meant oversampling one of the user groups. All lengths collected were measured in millimeters (mm) using total length (TL). Differences in length distributions between the "halibut sampling days" and the other sampling days were analyzed post-season to determine if they were significant for purposes of pooling data. Inseason monitoring of port and class specific halibut samples was maintained in order to ensure minimum sample size goals were met. Procedures outlined by Clark (Clark 1992) were then used to convert the Pacific halibut length measurements to estimates of round and net weights (also see Hubartt et al. 2000).

Lingcod length measurements were taken concurrently with halibut samples in Ketchikan, Craig/Klawock, and Sitka. Mean round weight of lingcod was estimated as the mean of the predicted weights of all n sampled fish in the form as follows (Nielsen and Schoch 1980):

$$\overline{w} = \sum_{i=1}^{n} aL_i^b \qquad (3)$$

where L_i = the observed length of the *i*th fish in centimeters, $a = 7.9 \times 10^{-6}$ for round weight in kilograms and b = 3.07. The constants a and b are those used by ADF&G, Commercial Fisheries Division (D. Carlile, Alaska Department of Fish and Game, Juneau, personal communication). Weights in kilograms were then converted to pounds by multiplying by 2.2046. Variances of the mean predicted weights were estimated using standard procedures but should be considered minimum estimates because variation inherent in the length-weight relationship is not incorporated.

The following assumptions were necessary for unbiased estimates of average weights of Pacific halibut and lingcod: average weight did not vary substantially within the sampling season, or sampling was proportional to harvest throughout the season; and measured fish were representative of the entire harvest.

[1] The derbies conducted at each location are directed at salmon and during these derbies the vast majority of harvest was of salmon with few other species observed. The primary survey/sampling duties of the technicians on derby days included collection of information related to the salmon harvest. It was expected that the resultant sampling rate would not be truly proportional since we purposely avoided these derby day samples.

WEEKLY ESTIMATES OF COHO SALMON HARVEST PER UNIT EFFORT

Data collected during creel surveys of the Ketchikan, Juneau and Sitka marine boat sport fisheries were used to calculate mean weekly coho salmon harvest per unit effort (HPUE) of boat anglers in harvest per angler-hour. Harvest instead of total catch was used, because relatively few coho salmon were released, and those salmon released may not have been correctly identified to species. Estimates obtained by these procedures were indicative of the abundance of coho salmon (L. D. Shaul, Alaska Department of Fish and Game, Douglas, personal communication). Mean HPUE from these fisheries was considered to be an index of abundance under the traditional linear model:

$$HPUE_k = qN + \varepsilon_k \qquad (4)$$

where $HPUE_k$ is the harvest per unit of effort during the k^{th} angler-trip, N is the abundance of fish, q is the catchability coefficient, and ε is a random error with mean equal to zero and variance equal to σ^2. In this case, each angler-trip was considered a separate, replicated sample in a test fishery.

All boat-parties interviewed within each week surveyed at each location were treated as equally weighted test samples (i.e., ignoring strata and sampling stages). HPUE in terms of coho salmon harvested per angler-hour of salmon fishing effort was estimated for each week.

RESULTS

Detailed tables presenting total estimates of finfish effort, harvest, and catch for all species monitored in the Juneau, Sitka, and Ketchikan areas, as well as shellfish effort and harvest in Juneau and Ketchikan, can be found in Appendices A1 through A3. Appendices A4 through A6 present biweekly estimates and variances for effort, harvest, and catch for all species monitored for these three fisheries. Summary data from catch sampling programs are presented in Appendices A7 (Petersburg), A8 (Wrangell), A9 (Craig/Klawock), and A10 (Gustavus).

ANGLER EFFORT

An estimated 682,534 (SE = 23,588) angler-hours of effort were expended in the Ketchikan, Sitka, and Juneau marine boat sport fisheries during the time periods sampled (Table 1). Total effort expended in Ketchikan and Sitka was 97% and 89%, respectively, of that expended in Juneau. Eighty-three percent (83%) of the total angler-hours of effort was targeted on salmon in Ketchikan, 82% in Juneau, and 69% in Sitka. Bottomfish (primarily Pacific halibut) were the other major target of anglers. Major salmon derbies in Ketchikan, Juneau, and Sitka increased the amount of effort targeted on salmon, as 10%, 14%, and 6% of the total salmon fishing effort, respectively, occurred during these short time periods.

CHINOOK SALMON FISHERIES

An estimated 38,559 (SE = 1,813) Chinook salmon (large and small combined) were harvested in the Ketchikan, Sitka, and Juneau marine boat sport fisheries (Table 2). Relative precisions of the estimated Chinook salmon harvests were within our goal of ± 20% of the true value 90% of the time at all locations. About 64% (24,834) of the monitored harvest of Chinook salmon was taken in the Sitka fishery. The Juneau fishery accounted for an additional 17% of the harvest, and 19% was taken in the Ketchikan fishery. Most of the Chinook salmon harvested were at least 28″ in length, but an estimated 235 small (<28″) Chinook salmon were also harvested, demonstrating a modest response to emergency openings in hatchery terminal areas.

Harvest of Chinook salmon during the Ketchikan King Salmon Derby constituted 19% of the total Chinook salmon harvest in the Ketchikan marine fishery, whereas only 5% of the Chinook salmon harvest in the Juneau fishery was taken during the Juneau Golden North Salmon Derby, because of its later timing (Table 2). About 7% (1,824) of the total Sitka Chinook harvest was taken during the Sitka Salmon Derby. Anglers entered a total of 2,021 Chinook salmon in the Ketchikan, Juneau and Sitka derbies from a harvest of 3,555 fish during the derby time periods. In the Petersburg Salmon Derby held from 24 May to 27 May, 618 Chinook salmon were entered.

About 28% (10,871) of the estimated harvest of Chinook salmon in the Ketchikan, Juneau, and Sitka boat fisheries were sampled for coded wire tags (Appendix A11). Based on this sampling, we estimated 28% of the Chinook salmon harvested in the combined Ketchikan, Sitka, and Juneau marine boat fisheries were of Alaska hatchery

Table 1.–Summary of estimated total and derby angler effort by target for the Ketchikan, Sitka, and Juneau marine boat sport fisheries during 2002.

	TOTAL EFFORT BY TARGET AND TIME PERIOD			
	Ketchikan 4/29–9/29	Juneau 4/29–9/29	Sitka 4/29–9/29	Total
Boat-hours	81,957	91,812	68,289	242,058
SE	4,002	5,136	3,340	7,318
Salmon-hours	192,010	196,573	145,123	533,706
SE	12,697	13,810	7,952	20,376
Bottomfish-hours[a]	40,306	42,072	66,305	148,683
SE	3,088	3,980	5,512	7,467
Angler-hours[b]	232,316	238,746	211,472	682,534
SE	13,513	15,422	11,660	23,588
% salmon-hours[c]	83	82	69	78

	DERBY EFFORT BY TARGET AND TIME PERIOD			
	Ketchikan 5/25–27, 6/01–02, 6/08–09	Juneau 8/23–26	Sitka 5/25–27, 6/01–02	Total
Boat-hours	8,833	12,715	5,249	26,797
SE	1,513	2,557	339	2,991
Salmon-hours	20,968	32,825	11,057	64,850
SE	3,486	7,226	649	8,049
Bottomfish-hours	1,240	858	2,354	4,452
SE	206	196	197	346
Angler-hours	22,208	33,683	13,422	69,313
SE	3,677	7,241	1,869	8,152
% of total salmon fishery[d]	10	14	6	10

[a] Includes hours fished for Pacific halibut, rockfish, and other bottomfish.

[b] Includes all targeted and non-targeted effort.

[c] (salmon-hours/total angler-hours) * 100.

[d] (derby salmon-hours/total salmon-hours) * 100.

Table 2.–Summary of estimated harvests of Chinook salmon in the Ketchikan, Sitka, and Juneau marine boat sport fisheries surveyed during 2002.

TOTAL CHINOOK SALMON HARVESTS

Sport fishery	Time period	Harvest of Chinook ≥28″	Harvest of Chinook <28″	Combined	SE	Relative precision ($\alpha = 0.10$)
Ketchikan	4/29–9/29	7,161	134	7,295	571	13%
Juneau	4/29–9/29	6,329	101	6,430	531	14%
Sitka	4/29–9/29	24,834	0	24,834	1,636	11%
Total		38,324	235	38,559	1,813	8%

DERBY CHINOOK SALMON HARVESTS

Major salmon derbies	Time period	Chinook ≥28″		Chinook <28″		All sizes combined		
		Entered	Total[a]	Entered	Total[a]	Number	SE	%[b]
Ketchikan King Salmon Derby	5/25–27, 6/01–02, 6/08–09	1,054	1,410	0	7	1,417	90	19%
Juneau Golden North Salmon Derby	8/23–8/26	237	312	2	2	314	12	5%
Sitka Salmon Derby	5/25–27, 6/01–02	728	1,824	0	0	1,824	143	7%
Petersburg Salmon Derby[c]	5/24–5/27	618	635	0	0			

[a] Includes entered and take-home harvests.

[b] (total derby harvest/total area harvest) * 100.

[c] Number taken home was not estimated, but 17 non-derby Chinook were sampled at the derby station.

origin (Table 3). Relative precision of Alaska hatchery contribution estimates ranged from ±2 to ±17 percentage points of the true value 90% of the time as only Sitka failed to meet the goal of ±15 percentage points. Substantial numbers of hatchery fish also originated in British Columbia, Washington, and Oregon. In aggregate, 43% of the Chinook salmon harvested in these three fisheries originated in hatcheries. Only 10% of the Chinook salmon harvest in Sitka came from Alaska hatcheries, whereas the overall hatchery contribution was 30%. Seventy-five percent (75%) of Alaska hatchery Chinook salmon harvested in Sitka were produced at the Medvejie Hatchery. Sixty-four percent (64%) of Chinook salmon harvested in Ketchikan were from Alaska hatcheries, and another 6% were from non-Alaskan hatcheries. About 56% of Alaska hatchery Chinook salmon taken in Ketchikan originated from the Whitman Lake Hatchery. About 60% of the Chinook salmon harvest in the Juneau boat fishery was of Alaska hatchery origin, with most from Macaulay and Hidden Falls hatcheries. Detailed hatchery contribution estimates by tag code are listed in appendices for the Ketchikan (Appendix A12), Juneau (Appendix A13), and Sitka fisheries (Appendix A14). Wild stock recoveries were expanded as well, to estimate contributions. Seventeen (17) tagged Chinook salmon from the Unuk River wild stock were recovered in Ketchikan; 7 tagged Chinook salmon from the Taku River wild stock were

Table 3.–Contributions of hatchery Chinook salmon to the Ketchikan, Sitka, and Juneau marine boat sport fisheries of Southeast Alaska, 2002.

	Marine boat sport fishery			
Region or hatchery	Juneau	Ketchikan[a]	Sitka	**Total**
British Columbia	81	320	2,890	3,291
Oregon	0	102	772	874
Washington	39	53	1,406	1,498
Non-Alaskan total	120	475	5,068	5,663
SE	81	174	887	908
Alaska				
Crystal Lake	0	27	0	27
Crystal Lake/Neets Bay	50	456	91	597
Deer Mountain	0	12	5	17
Hidden Falls	453	0	12	465
Little Port Walter	20	0	33	53
Macaulay	3,295	0	57	3,352
Medvejie	12	0	1,785	1,797
Neets Bay	0	117	61	178
Sheldon Jackson	0	0	7	7
Tamgas Creek	0	1,451	20	1,471
Whitman Lake	9	2,587	306	2,902
Alaskan total	3,839	4,650	2,377	10,866
SE	588	732	334	996
Relative precision (%)[b]	15	17	2	4
Total all areas	3,959	5,125	7,445	16,529
SE	596	771	982	1,384
Relative precision (%)[b]	15	17	7	6
Chinook salmon harvest	6,430	7,295	24,834	38,559
SE	531	571	1,636	1,813
% Alaska hatchery	60	64	10	28
% total hatchery	62	70	30	43

[a] Ketchikan estimates are biased low because a major access site (Salmon Falls) was not sampled

[b] ((SE * 1.645) / total harvest) * 100, $\alpha = 0.10$..

recovered in Juneau; and 2 Unuk River, 1 Oregon, and 4 Washington wild stock tags recovered in Sitka (Appendices A12, A13, and A14). Of the 742 Chinook salmon examined for clipped adipose fins in Petersburg, about 40% were estimated to be from Alaska hatcheries, with Crystal Lake Hatchery contributing about 37% (Appendix A15). There were no tagged hatchery fish among the 244 Chinook salmon sampled from the Wrangell fishery. Overall, 15% of the 2,120 Chinook salmon sampled in Craig/Klawock came from hatcheries, but only 2% of those were from Alaska (Appendix A16). In the Gustavus fishery, a sample of 172 Chinook salmon indicated relative contributions of 49% overall, and 38% from Alaskan hatcheries (Appendix A17). A small sample (46) from Elfin Cove produced two non-Alaskan tags for a relative contribution of 37% (Appendix A18). In total, 1,090 Chinook salmon were successfully aged from the Ketchikan, Juneau, Petersburg, Wrangell, and Gustavus fisheries (Table 4; Appendix A19). The age composition of Chinook salmon sampled at the various ports was postseason stratified into spring (29 April–1 July) and summer (2 July–29 September). Chinook salmon were sampled for scales proportionally to the harvest in Juneau, Petersburg, and Wrangell, and thus no change to this spring and summer stratification was necessary. In Ketchikan, how ever, proportionally more chinook scales were sampled before and during the derby period (i.e., 29 April–23 June) than during the remainder of the season (24 June–29 September). Therefore, we used a modified temporal stratification of spring (29 April–23 June) and summer (24 June–29 Sep-tember) for Ketchikan age composition analysis.

Only 5% of the sampled chinook salmon lacked a freshwater annulus (age-0.), which usually

Table 4.–Summary of the age composition of Chinook salmon sampled in selected marine sport fisheries in Southeast Alaska during 2002.

		FRESHWATER AGE COMPOSITION				
		Age 0.		**Age 1. or more**		Total
Sport fishery	Period	No. observed	Percent	No. observed	Percent	sampled
Ketchikan	4/29-6/23[a]	6	4	131	96	137
	6/24–9/29	7	6	103	94	110
Juneau	4/29–7/01	1	0	283	100	284
	7/02–9/29	6	4	142	96	148
Juneau Derby	8/23–26	4	5	83	95	87
Petersburg	5/06–7/07	0	0	100	100	100
Wrangell	4/29–6/30	0	0	120	100	120
Gustavus	6/03–9/15	13	18	60	82	73
Elfin Cove	7/01–9/01	16	52	15	48	31
Total		53	5	1,037	95	1,090
		SALTWATER AGE COMPOSITION				
		Age .3 or less		**Age .4 or more**		Total
Sport fishery	Period	No. observed	Percent	No. observed	Percent	sampled
Ketchikan	4/29-6/23[a]	92	67	45	33	137
	6/24–9/29	91	83	19	17	110
Juneau	4/29–7/01	177	62	107	38	284
	7/02–9/29	142	96	6	4	148
Juneau Derby	8/23–26	87	100	0	0	87
Petersburg	5/06–7/07	12	12	88	88	100
Wrangell	4/29–6/30	24	20	96	80	120
Gustavus	6/03–9/15	68	93	5	7	73
Elfin Cove	7/01–9/01	19	61	12	39	31
Total		712	65	378	35	1,090

[a] Ketchikan seasonal strata modified to 4/29–6/23 and 6/24–9/29 due to Ketchikan derby fish being sampled disproportionately high during late May to mid-June 2002.

indicates non-Alaskan origin (Van Alen 1988), although a few systems in the Ketchikan area produce age-0. Chinook salmon. Saltwater ages varied considerably; 100% of the Chinook salmon sampled during the Juneau Golden North Salmon Derby were age-.3 or less, whereas only 12% of Chinook salmon sampled in the Petersburg fishery were age-.3 or less. Mean length-at-age of sampled Chinook salmon varied only slightly among the fisheries surveyed (Appendix A20). In general, fish of a given age were smaller in the northern Juneau fishery than in the Ketchikan fishery at the south end of the region. Sample sizes in the other fisheries were small, but generally also fit in with a north-south trend of increasing fish size at age.

Over 85% of the Chinook salmon taken in spring fisheries and sampled for biological data (i.e., age, sex and length) in Juneau, Ketchikan, Petersburg, and Wrangell were classified as mature (Table 5). Maturity percentages ranged from a high of 95% mature in the Ketchikan fishery to a low of 71% mature in the Wrangell fishery.

The estimated harvest of large mature Chinook salmon in the Juneau fishery from 29 April through 23 June totaled 4,227 fish, of which 1,942 (SE = 298) were estimated to from wild stocks. Most of these are assumed to be of Taku River origin (Appendix A13). Due to the relatively small harvests, relative precision (30%) of the wild mature spring harvest Chinook salmon in the Juneau fishery did not meet the goal of ±20%.

COHO SALMON FISHERIES

Harvests of coho salmon in the Ketchikan, Sitka, and Juneau fisheries totaled an estimated 106,312 fish (SE = 6,875) (Table 6). The only monitored derby in which coho salmon were heavily targeted was the Juneau Golden North Salmon Derby, where an estimated 6,642 coho salmon (SE = 396) were harvested during this event (Appendix A2).

Harvests of hatchery coho salmon were estimated from an overall sample of 31% of the coho salmon harvest (Appendix A21). Estimates of hatchery and tagged wild stock coho contributions by tag code and time period are presented in Appendix A22 for the Ketchikan fishery, Appendix A23 for the Juneau fishery, and Appendix A24 for the Sitka fishery.

About 22 (SE = 10) hatchery coho salmon taken in Ketchikan originated in British Columbia hatcheries, but most of the 25,935 (SE = 2,182) hatchery coho salmon taken in the combined Ketchikan, Sitka, and Juneau fisheries were from Alaska (Table 7). Hatchery contributions were 18%, 20%, and 35% of the total harvest in Juneau, Sitka, and Ketchikan, respectively. The Neets Bay hatchery contributed the most coho salmon to the Ketchikan fishery, and Macaulay contributed the most coho salmon to the Juneau fishery. Eight different hatcheries contributed more than 200 fish to the Sitka fishery with Neets Bay hatchery being the largest contributor.

Table 5.–Summary of estimated maturity of Chinook salmon in spring (through 1 July) Ketchikan, Juneau, Petersburg, and Wrangell marine boat sport fisheries, 2002.

Sport fishery	Statistic	M		F		Total[a]	
		Mat.	Imm.	Mat.	Imm.	Mat.	Imm.
Ketchikan	Sample size	44	3	40	2	91	5
	Percent	94	6	95	5	95	5
Juneau	Sample size	70	21	80	15	208	39
	Percent	77	23	84	16	84	16
Petersburg	Sample size	36	5	65	1	101	6
	Percent	88	12	98	2	94	6
Wrangell	Sample size	35	18	39	22	99	41
	Percent	66	34	64	36	71	29
Total	Sample size	185	47	224	40	499	91
	Percent	80	20	85	15	85	15

[a] Total includes unsexed fish.

Table 6.–Summary of estimated catch and harvest of coho salmon in the Ketchikan, Sitka, and Juneau marine boat sport fisheries, 2002.

Sport fishery	Total harvest		Total catch		
	Estimate	SE	Estimate	SE	% retained
Ketchikan	33,889	3,023	38,964	3,311	87%
Juneau	26,273	3,239	27,323	3,329	96%
Sitka	46,150	5,257	47,952	5,415	96%
TOTAL	106,312	6,875	114,239	7,167	93%

Table 7.–Contributions of hatchery coho salmon to the Ketchikan, Sitka, and Juneau marine boat sport fisheries of Southeast Alaska, 2002.

Region or hatchery		Marine boat sport fishery Juneau	Ketchikan	Sitka	**Total**
British Columbia		0	22	0	22
Non-Alaskan total		0	22	0	22
	SE	0	10	0	10
Alaska					
Burnett Inlet		0	131	307	438
Crystal Lake		6	0	35	41
Deer Mountain		0	1,247	35	1,282
Gunnuk Creek		0	0	6	6
Hidden Falls		811	0	1,404	2,215
Klawock River		0	68	76	144
Macaulay		3,991	0	120	4,111
Medvejie		0	0	587	587
Medvejie CIF		0	0	304	304
Nakat Inlet		0	203	305	508
Neets Bay		0	9,675	3,715	13,390
Port Armstrong		0	0	1,743	1,743
Sheldon Jackson		0	0	62	62
Tamgas Creek		0	96	199	295
Whitman Lake		0	338	449	787
Alaskan total		4,808	11,758	9,347	25,913
	SE	802	1,518	1,347	2,182
Relative precision[a]		5	7	5	3
Total all areas		4,808	11,780	9,347	25,935
	SE	802	1,518	1,347	2,182
Relative precision[a]		5	7	5	3
Coho salmon harvest		26,273	33,889	46,150	106,312
	SE	3,239	3,023	5,257	6,875
% Alaska hatchery		18	35	20	24
% total hatchery		18	35	20	24

[a] ((SE ∗ 1.645) / total harvest) ∗ 100, $\alpha = 0.10$.

About 12% of the 6,567 coho salmon examined for clipped adipose fins from the Craig/Klawock fishery were from Alaska hatcheries–Klawock hatchery contributing about 7% (Appendix A25); 17% of the 2,884 coho salmon examined at Gustavus were from Alaska hatcheries (Appendix A26); and 4% of the 324 coho salmon examined at Elfin Cove were from Alaska hatcheries.

Additionally, some recoveries of coho salmon from wild-tagged indicator stocks were obtained in the Ketchikan, Juneau, Sitka, Craig/Klawock, Gustavus, and Elfin Cove fisheries (Appendices A22, A23, A24, A25, A26, and A27). Contributions of these wild-tagged stocks were estimated when an estimate of the tagging fraction, θ_c, was available, if not available, recoveries were expanded only by the sampling fraction. The sport fishery with the greatest percentage of wild-tagged coho stocks was Juneau, with an estimated 25% of the total coho harvest of 26,273 fish from wild Taku River stocks (Appendix A23).

The weekly harvest per unit of effort (HPUE) for coho salmon in the Ketchikan, Juneau, Sitka, and Craig/Klawock fisheries reached highs of 0.600

(SE = 0.037), 0.466 (SE = 0.046), 1.038 (SE = 0.114), and 1.450 (SE = 0.454) coho salmon per angler-hour, respectively (Table 8). The peak in HPUE for coho salmon occurred in mid September in Ketchikan, in mid August in Juneau, in mid July and in mid September in Sitka, and in late August in Craig/Klawock. Usually, Sitka and Craig/Klawock anglers experienced higher weekly HPUEs for coho salmon than did Ketchikan and Juneau anglers.

BOTTOMFISH FISHERIES

Most bottomfish effort in Southeast Alaska targets Pacific halibut, and an estimated 47,441 (SE = 3,196) Pacific halibut were harvested in Ketchikan, Sitka, and Juneau (Table 9). The estimated harvest of 34,260 Pacific halibut in Sitka was nearly triple the combined Ketchikan and Juneau harvest. Pacific halibut were sampled for length proportionally to estimated harvest during the course of the season at the ports of Ketchikan, Juneau, Sitka, Craig/Klawock, Petersburg, Wrangell, and Gustavus, and there was no need for seasonal stratification of the length data. We estimated about 1,016,000 pounds (net weight) of Pacific halibut were taken in the 3 major ports with about 74% of this poundage landed in Sitka (Table 10). Estimated average net weight (headed and eviscerated) of harvested Pacific halibut ranged from 12.0 pounds in Craig/Klawock to 36.2 pounds in the Gustavus fishery. Overall, average net weights in all the sampled ports were estimated to within ±10% of the true value 90% of the time. But despite exceeding our target sample sizes in most ports and classes, some class specific estimates

Table 8.–Mean harvest per unit effort (HPUE) for coho salmon (harvest per angler-hour of effort) by weekly period in the Ketchikan, Juneau, Sitka and Craig/Klawock marine boat sport fisheries during 2002.

Mean harvest of coho salmon per angler-hour of effort								
Weekly	Ketchikan		Juneau		Sitka		Craig/Klawock	
period	HPUE	SE	HPUE	SE	HPUE	SE	HPUE	SE
5/27–6/02	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
6/03–6/09	0.002	0.002	0.000	0.000	0.000	0.000	0.011	0.005
6/10–6/16	0.004	0.003	0.000	0.000	0.006	0.002	0.046	0.015
6/17–6/23	0.007	0.004	0.002	0.001	0.039	0.007	0.145	0.029
6/14–6/30	0.094	0.018	0.003	0.002	0.182	0.025	0.077	0.020
7/01–7/07	0.111	0.025	0.031	0.011	0.229	0.037	0.112	0.023
7/08–7/14	0.223	0.039	0.121	0.024	0.133	0.030	0.290	0.042
7/15–7/21	0.159	0.022	0.183	0.028	1.038	0.114	0.253	0.030
7/22–7/28	0.257	0.073	0.213	0.023	0.589	0.074	0.511	0.060
7/29–8/04	0.144	0.028	0.264	0.031	0.762	0.067	0.517	0.046
8/05–8/11	0.293	0.051	0.329	0.025	0.813	0.061	0.830	0.119
8/12–8/18	0.322	0.058	0.466	0.046	0.571	0.050	0.734	0.080
8/19–8/25	0.220	0.024	0.079	0.007	0.816	0.080	0.936	0.188
8/26–9/01	0.327	0.027	0.338	0.047	0.666	0.060	1.450	0.454
9/02–9/08	0.492	0.033	0.328	0.039	0.801	0.128	0.252	0.109
9/09–9/15	0.600	0.037	0.000	0.000	0.961	0.420	0.139	0.090
9/16–9/22	0.357	0.033	0.000	0.000	0.468	0.186		
All periods	0.248	0.009	0.129	0.006	0.359	0.015	0.356	0.021

Table 9.–Summary of estimated catch and harvest of Pacific halibut, rockfish, and lingcod in the Ketchikan, Sitka, and Juneau marine boat sport fisheries, 2002.

	Sport fishery	Total catch	SE	Harvest	SE	% retained
Pacific halibut	Ketchikan	8,811	974	7,009	751	80%
	Juneau	9,092	1,085	6,172	625	68%
	Sitka	42,232	3,840	34,260	3,043	81%
	Total	60,135	4,107	47,441	3,196	79%
Rockfish	Ketchikan	9,400	939	3,627	399	39%
	Juneau	811	305	534	165	66%
	Sitka	27,497	1,796	14,174	1,169	52%
	Total	37,708	2,050	18,335	1,246	49%
Lingcod	Ketchikan	2,020	497	617	122	31%
	Juneau	253	225	9	9	4%
	Sitka	10,271	1,323	1,946	270	19%
	Total	12,544	1,431	2,572	297	21%

Table 10.–Average length (cm), average net weight (lb), and estimated number and total net weight (lb) of Pacific halibut harvested in Southeast Alaska marine boat sport fisheries during 2002.

Sport fishery	Class	Sample size	Mean length (cm)	SE	Average net weight (lb)	SE	Relative precision[b]	Estimated harvest	
								Number[c]	Net weight (thousand lb)[c]
Ketchikan	Charter	1,428	95.1	0.6	21.8	0.6	**5%**		
	Non-charter	411	88.8	1.4	18.4	1.0	**9%**		
	Overall[a]	1,840	93.7	0.5	21.0	0.5	**4%**	7,009	147.2
Juneau	Charter	63	87.6	2.3	16.1	1.8	18%		
	Non-charter	474	89.8	1.1	19.6	1.1	**9%**		
	Overall[a]	537	89.5	1.0	19.2	1.0	**9%**	6,172	118.5
Sitka	Charter	621	94.2	1.0	22.2	1.1	8%		
	Non-charter	202	91.4	1.8	20.7	1.7	14%		
	Overall[a]	823	93.5	0.9	21.9	0.9	**7%**	34,260	750.3
Petersburg/ Wrangell	Charter	196	110.8	1.9	35.8	2.7	12**%**		
	Non-charter	132	96.9	2.0	22.9	1.7	12**%**		
	Overall[a]	328	105.2	1.4	30.6	1.8	**10%**		
Craig/ Klawock	Charter	408	79.1	0.7	11.2	0.6	9%		
	Non-charter	149	83.5	1.5	14.0	1.3	15**%**		
	Overall[a]	557	80.3	0.7	12.0	0.6	**8%**		
Gustavus	Charter	1,043	115.2	0.8	38.7	0.9	**4%**		
	Non-charter	281	101.7	1.5	27.1	1.5	**9%**		
	Overall[a]	1,328	112.3	0.7	36.2	0.8	**4%**		
Total								47,441	1,016.0

[a] Includes data where class was not identified; therefore, total may be more than the sum by class.

[b] Relative precision ($\alpha = 0.10$) = (SE * 1.645 / estimate) * 100. Those estimates where goals of ±5% for charter and ±10% for non-charter were achieved are shown in **Bold.**

[c] Estimates of harvest were only determined in Ketchikan, Juneau, and Sitka, therefore, total net weight estimates for other areas were not calculated.

fell short of our objectives (relative precision = 18% for charter in Juneau, 8% for charter and 14% for non-charter in Sitka, 12% for charter and 12% for non-charter in Petersburg, and 9% for charter and 15% for non-charter in Craig/ Klawock).

Although rockfish are not a primary target of most Southeast Alaska sport anglers, an estimated 37,708 (SE = 2,050) rockfish were caught in the combined Ketchikan, Sitka, and Juneau fisheries (Table 9). Only 49% (18,335, SE = 1,246) of the rockfish caught were retained. Retention in Juneau, where few rockfish were caught and retention usually exceeds 90%, dropped to 66%.

Major species composition of the rockfish harvest was estimated for the Ketchikan and Sitka fisheries (Table 11). Yelloweye rockfish composed nearly 55% of the harvest in Sitka but only 30% of the harvest in Ketchikan. Quillback rockfish *S. maliger* (28%) were the next most frequently taken species in Ketchikan, but composed only about 1% of the rockfish harvest in Sitka. Black rockfish *S. melanops* were the second most commonly harvested species in Sitka at 31%. Other rockfish species in the sport harvest included copper *S. caurinus*, dusky *S. ciliatus*, and silvergrey *S. brevispinis*, along with a variety of other unidentified species.

An estimated 1,946 (SE = 270) lingcod were harvested in Sitka, 617 (SE = 122) in Ketchikan, and 9 (SE = 9) in Juneau (Table 9). Except for females in Ketchikan sample sizes for lingcod length measurements were adequate to obtain precision goals of ±10% for round weight in all sampled fisheries and even by sex by fishery (Table 12). In all areas sampled, average total length and round weight of females were greater than males. Yakutat had the largest overall average round weight at 23.5 lb. Lingcod taken in Ketchikan had the lowest average round weight (13.4 lb).

OTHER SALMONID FISHERIES

Although not usually primary targets, other salmonids such as pink, chum, and sockeye salmon, and Dolly Varden were harvested in Ketchikan, Sitka and Juneau (Table 13). Pink salmon were abundant in Ketchikan, as the estimated harvest totaled 43,063 (SE = 7,489). Only 5,719 (SE = 908) pink salmon were harvested in Sitka and only 2,763 (SE = 430) in

Table 11.–Rockfish composition in the Ketchikan and Sitka marine boat sport fisheries during 2002. (An estimated 534 rockfish harvested in the Juneau marine boat sport fishery were not identified by individual species).

	Ketchikan		Sitka	
Rockfish species	Harvest[a]	%	Harvest[a]	%
Quillback	1,011	28	169	1
Dusky	188	5	97	1
Copper	300	8	150	1
Black	430	12	4,345	31
Yelloweye	1,095	30	7,854	55
Silvergrey	251	7	158	1
Other nonpelagic	76	2	458	3
Other pelagic	276	8	943	7
Total	3,627		14,174	

[a] The unidentified rockfish harvest was allocated to species by expanding the appropriate percentage of harvest in the identified harvest to the total harvest.

Table 12.–Average total length (cm) and round weight (lb) by sex of lingcod harvested in sampled sport fisheries of Southeast Alaska during 2002.

Sport fishery	Sex	Sample size	Percent by sex	Mean TL (cm)	SE	Avg. round wt. (lb)	SE	Relative precision[a]
Craig/Klawock	All[b]	45		88.1	1.63	16.9	0.91	9%
Sitka	Males	173	47	86.3	0.76	15.9	0.39	4%
	Females	193	53	93.5	0.61	20.0	0.38	3%
	All[b]	368		90.2	0.52	18.1	0.29	3%
Ketchikan	Males	6	38	60.5	0.56	5.1	0.15	5%
	Females	10	62	72.2	3.56	9.5	1.50	26%
	All[b]	99		80.0	1.47	13.4	0.81	10%
Yakutat	Males	18	25	34.6	0.51	16.3	0.78	8%
	Females	54	75	102.5	0.57	25.9	0.42	3%
	All[b]	72		98.9	0.91	23.5	0.61	4%

[a] Relative precision (alpha of 0.10) = (SE*1.645/estimate)*100. A precision of ±10% at 0.10 alpha level was the sampling goal in Craig/Klawock and Sitka.

[b] Includes data where sex was not determined; therefore, totals greater than the sum by sex.

Table 13.–Summary of estimated total catch and harvest of pink salmon, chum salmon, sockeye salmon, and Dolly Varden in the Ketchikan, Sitka, and Juneau marine boat sport fisheries surveyed during 2002.

	Sport fishery	Total catch	SE	Harvest	SE	% retained
Pink salmon	Ketchikan	52,133	8,293	43,063	7,489	83%
	Juneau	5,460	677	2,763	430	51%
	Sitka	12,965	1,928	5,719	908	44%
	Total	70,558	8,541	51,545	7,556	73%
Chum salmon	Ketchikan	2,194	461	1,966	444	90%
	Juneau	884	128	713	109	81%
	Sitka	969	219	661	116	68%
	Total	4,047	526	3,340	471	83%
Sockeye salmon	Ketchikan	22	13	22	13	100%
	Juneau	57	40	57	40	100%
	Sitka	356	166	356	166	100%
	Total	435	171	435	171	100%
Dolly Varden	Ketchikan	0	0	0	0	0%
	Juneau	346	103	101	29	29%
	Sitka	118	91	12	8	10%
	Total	464	137	113	30	24%

Juneau. Retention rates for pink salmon were 51% in Juneau, 44% in Sitka, and 8% in Ketchikan. Harvests of both chum and sockeye salmon were much less, totaling 3,340 (SE = 471) chum salmon and 435 (SE = 171) sockeye salmon for the three fisheries combined. Juneau anglers took most (89%) of the 113 (SE = 30) Dolly Varden harvested.

SHELLFISH FISHERIES

Shellfish effort and harvests of Dungeness, Tanner, and king crab were estimated for Ketchikan and Juneau (Table 14). Shellfish effort in boat-days for the Juneau fishery was 4,767 boat-days, more than double that estimated for the Ketchikan fishery (1,751 boat-days). A popular red king crab personal use fishery in the Juneau area is the main reason for the high effort there. Substantial numbers of Dungeness (7,270), Tanner (506), and king crab (5,455) were harvested in the Juneau fishery, but no king crab or Tanner crab were taken in the Ketchikan area. Shrimp harvest was estimated as 126,880 in Ketchikan.

Table 14.–Estimated effort for, and harvest of, Dungeness crab, king crab, Tanner crab and shrimp in the Ketchikan and Juneau marine boat sport fisheries during 2002.

Sport fishery	Time period	Effort		Harvest			
		Boat-days	SE	Dungeness crab	Tanner crab	King crab	Shrimp
Ketchikan	4/29–9/29	1,751	162	7,815	0	0	126,880
Juneau	4/29–9/29	4,767	303	7,270	506	5,455	NA
Total		6,518	344	15,085	506	5,455	126,880

DISCUSSION

Onsite creel surveys provide data necessary for inseason management, and they also can provide detailed fishery performance and biological information difficult to obtain with mail surveys.

For inseason management, the usefulness of onsite surveys lies in their consistency of method and coverage, so that inseason estimates can be compared with historical SWHS and onsite creel estimates. Because the Clover Pass access location was not sampled in the Ketchikan fishery from 1997 through 2000 and the Salmon Falls access location was not sampled during 2001, it is known that estimates were biased low in comparison to previous surveys. The probable bias could have ranged up to 40%, but was more likely in the range of 20%. Therefore, in comparisons with past Ketchikan creel surveys, estimates may be biased low in 1997–2001.

Effort, harvest and total catch estimates from the three creel surveys reported here should not be considered to encompass all of these three fisheries. Overall statistics are best estimated by the SWHS (Walker et al. 2003). Estimates for Chinook salmon in the Juneau, Sitka, and Ketchikan fisheries are incomplete because there were no surveys of harvests occurring: (1) outside of the survey periods; (2) at all private moorages on the road system or remote moorages, docks, or lodges inaccessible from the road system; (3) during the night period from the end of civil twilight to the beginning of surveys at about 0800; and (4) by boat parties which were not sampled because they were not observed by creel samplers. As previously discussed, omission of the Salmon Falls access location in Ketchikan during 2001 had the largest impact. Mills and Howe (1992) reported that SWHS estimates were generally about 10% higher than creel survey estimates for comparable surveys from the same geographic areas in Southeast Alaska.

Onsite creel surveys of the Juneau marine boat sport fishery have been conducted every year since 1960 (Schmidt et al. 1973; Schmidt and Robards 1974, 1975; Mattson 1975; Robards 1976, 1977, 1978; Marriott et al. 1979; Schwan 1980, 1981, 1982; Neimark and Schwan 1983; Neimark 1984, 1985; Mecum and Suchanek 1986, 1987; Bingham et al. 1988; Suchanek and

Bingham 1989-1992; Hubartt et al. 1993-2002). These reports also present results from other surveys that have been done more sporadically. The Ketchikan fishery has been monitored for the entire spring and summer season since 1984, except for a one-year hiatus in 1985. The Sitka fishery was not surveyed in 1990, 1991, or prior to 1986, but was surveyed in the spring in 1986 and 1989, and for most of the season (April or May through August or September) in 1987–1988 and 1992–2002. The Petersburg and Wrangell fisheries were not surveyed in 1990 or 1991, but were consistently surveyed in the spring from 1983–1989 and during 1992–1994; and in Petersburg in 1995. Additional catch sampling results are presented in these reports for Wrangell from 1995–2002, Petersburg from 1996–2002, and Craig from 1993–2002. Catch sample results for Yakutat from 1998 and 1999 are presented in Johnson (2001).

The Juneau and Ketchikan marine boat fisheries have been consistently surveyed from approximately mid-April or early May through late September or, occasionally, early October. Among-year comparisons of angler effort and harvest for a given fishery are confounded by some variation in the time periods surveyed from year to year. Effort and harvest at either the beginning or the end of the survey season is small, however, in comparison to effort during the middle of the season. Among-year comparisons are generally valid, but the variations in survey periods should be noted. Variances for the harvest estimates have been generated since 1987, but we have not done detailed statistical comparisons with prior years as we have primarily examined general trends. In the following discussion, it should be noted that in some instances it might not be possible to show a statistically significant difference between years.

ANGLER EFFORT

Fishing effort in the Juneau and Ketchikan marine fisheries has been generally declining over the past decade while effort in the Sitka fishery has been generally increasing (Table 15 and Figure 2). Total effort in the Juneau fishery during 2002 was 3% lower than in 2001, and 30% lower than the 1983–2001 average of 340,133 angler-hours. In Ketchikan, total 2002 effort was up 38% from 2001, but 1% below the 1984–2001 average of 235,688 angler-hours. Effort in the Sitka fishery increased, as total effort during 2002 was 10% higher than in 2001, and 30% higher than the 1987–2001 average of 163,283 angler-hours.

Estimated effort for both salmon and bottomfish was below average in Juneau in 2002 (Table 15). In both Juneau and Ketchikan, 82% and 83%, respectively, of the 2002 effort targeted salmon, slightly above the averages for both fisheries (78% and 74%, respectively). In the Sitka fishery, bottomfishing effort was 40% above average while salmon fishing effort was 26% above average. Bottomfishing effort in Juneau was the lowest recorded and Ketchikan was well below average and was possibly related to the above average abundance of Chinook and coho salmon.

CHINOOK SALMON FISHERIES

Total harvest of Chinook salmon in the Juneau marine boat fishery has shown little trend since 1983 although 1998 to 2002 harvests were some of the lowest for the period (Table 16, Figure 3). The 2002 Juneau harvest of 6,779 Chinook salmon was 95% of average, and the Juneau Golden North Derby harvest was the third lowest recorded since 1983. The Ketchikan Chinook harvest increased to a peak in 1991 and then steadily declined to l6% of the 1991 peak in 1998. In 2002, the Ketchikan harvest of 7,295 was 46% above the 1984–2001 average of 5,020. Chinook harvests in the Sitka fishery generally increased from 1992 to 1997 but have declined through 2000. The 2002 Sitka harvest of 24,834 was 19% higher than in 2001, and 71% above average.

Hatchery contributions of Chinook salmon to the Juneau and Ketchikan fisheries increased steadily during the late 1980s but remained fairly consistent since about 1990 (Table 17, Figure 4). In 2002, 60% of the Chinook salmon harvest in

Table 15.–Estimated angler effort in the Juneau, Ketchikan and Sitka marine boat sport fisheries as determined by onsite creel surveys for comparable sample periods, 1983–2002.

Sport fishery	Year	Survey dates	Salmon-hours		Bottomfish-hours		Total angler-hours
			Estimate	Percent	Estimate	Percent	
Juneau	1983	4/17–10/01	236,344	74	84,259	26	320,603
	1984	4/29–9/29	246,732	77	72,090	23	318,822
	1985	4/15–9/29	269,077	79	72,381	21	341,458
	1986	4/14–10/05	240,921	76	77,165	24	318,086
	1987	3/16–9/27	307,124	76	94,658	24	401,840
	1988	4/11–9/25	254,196	72	96,188	27	351,247
	1989	4/24–9/24	287,676	77	85,354	23	373,504
	1990	4/23–9/23	300,167	78	83,106	22	383,976
	1991	4/15–9/29	324,788	82	69,475	18	394,275
	1992	4/27–9/27	301,588	78	84,718	22	388,498
	1993	4/26–9/26	270,838	77	78,820	23	349,965
	1994	4/25–9/25	320,385	83	63,398	16	384,528
	1995	4/24–9/24	265,923	81	60,158	18	326,807
	1996	4/22–9/22	287,481	81	67,555	19	355,381
	1997	4/28–9/28	226,921	74	78,435	26	305,097
	1998	4/27–9/27	221,598	75	75,288	25	297,229
	1999	4/26–9/26	252,169	80	63,578	20	316,442
	2000	4/24–9/24	222,710	77	65,190	23	288,525
	2001	4/23–9/23	200,472	81	45,496	18	246,244
	Average		265,111	78	74,595	22	340,133
	2002	4/29–9/29	196,573	82	42,072	18	238,746
	% of average		74		56		70
Ketchikan	1984	4/29–9/29	161,100	72	62,625	28	223,725
	1985	----------no comparable survey----------					
	1986	4/28–9/28	133,518	72	51,208	28	184,726
	1987	4/20–9/27	157,306	65	84,954	35	242,274
	1988	4/11–9/25	153,086	68	71,611	32	225,779
	1989	4/24–9/24	195,974	71	79,958	29	276,516
	1990	5/07–9/23	199,063	80	49,347	20	248,618
	1991	4/29–9/29	275,856	80	67,842	20	343,698
	1992	4/27–9/27	192,269	73	69,366	27	261,635
	1993	4/26–9/26	198,960	72	78,002	28	276,969
	1994	4/25–9/25	230,372	80	56,092	20	286,464
	1995	4/24–9/24	175,765	63	101,381	37	277,146
	1996	5/6–10/6	188,947	74	62,673	25	253,977
	1997	4/28–9/28	144,735	72	55,242	28	199,977
	1998	4/27–9/27	163,855	80	41,194	20	205,063
	1999	4/26–9/26	136,284	80	33,359	20	169,664
	2000	4/24–9/24	124,005	76	38,340	24	162,344
	2001	5/07–9/23	135,567	81	32,555	19	168,123
	Average		174,510	74	60,926	26	235,688
	2002	4/29–9/29	192,010	83	40,306	17	232,316
	% of average		110		66		99
Sitka	1987	4/20–9/13	33,130	56	24,266	41	58,814
	1988	4/11–9/25	35,763	65	18,493	34	54,766
	1989	----------no comparable survey----------					
	1990/91	no surveys					
	1992	5/11–8/30	74,183	64	40,756	35	115,031
	1993	4/26–9/26	107,184	71	44,480	29	151,829
	1994	4/25–9/25	123,971	74	43,363	26	168,146
	1995	4/24–9/24	135,866	72	51,710	28	188,000
	1996	4/22–9/22	136,585	75	45,075	25	182,513
	1997	4/28–9/28	145,114	70	61,711	30	207,288
	1998	4/27–9/27	144,850	71	57,378	28	202,818
	1999	4/26–9/26	168,793	74	57,899	25	229,012
	2000	4/24–9/24	138,705	66	69,918	33	209,027
	2001	4/23–9/23	140,571	73	51,429	27	192,150
	Average		115,393	71	47,207	29	163,283
	2002	4/29–9/29	145,123	69	66,305	31	211,472
	% of average		126		140		130

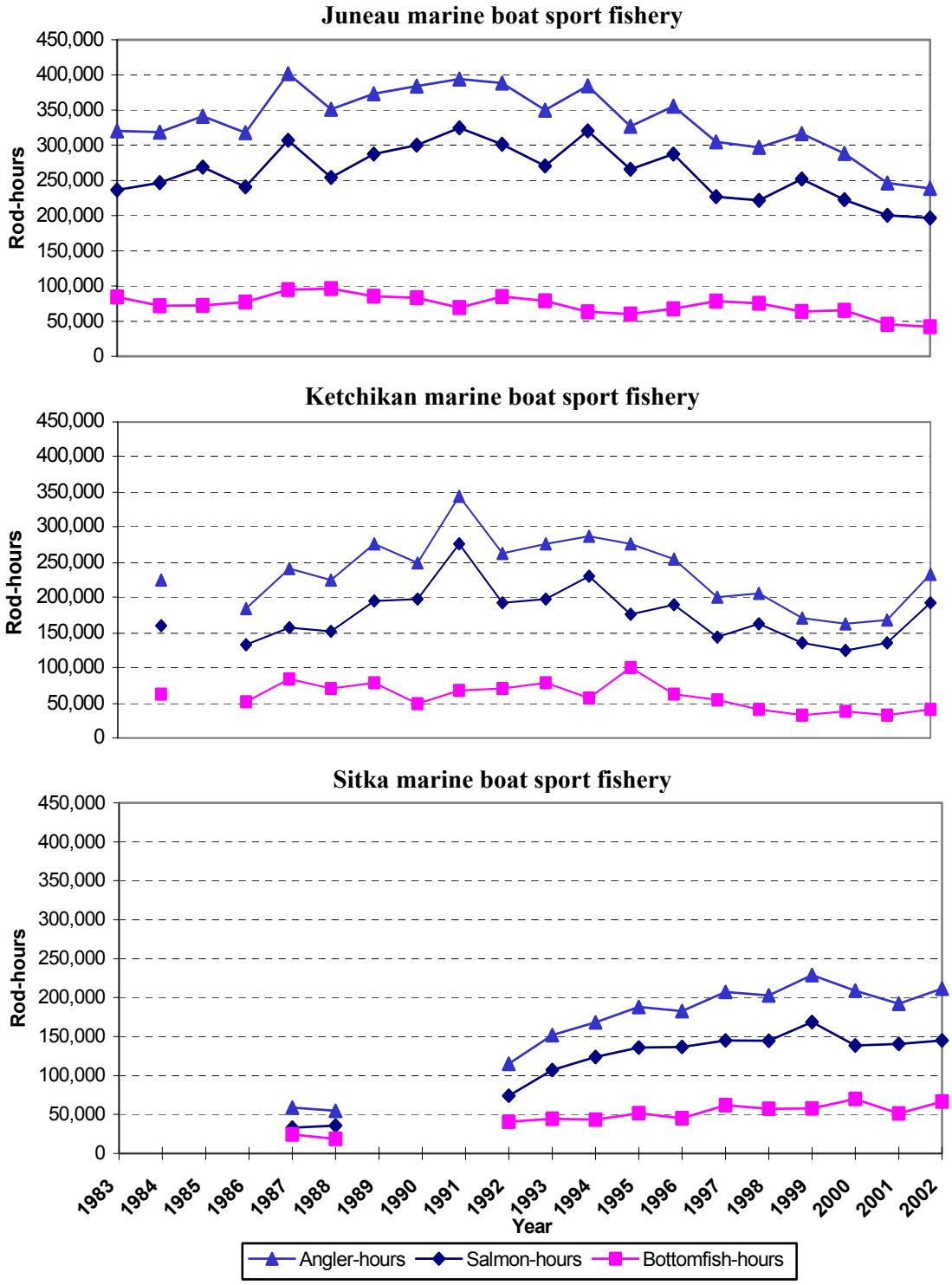

Figure 2.–Estimated effort in the Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys.

Table 16.–Estimated harvest of Chinook salmon in the Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys for comparable sample periods, 1983–2002.

Year	Juneau[a]	Juneau Golden North Derby	Ketchikan	Sitka
1983	4,316	872		
1984	6,474	855	1,820	
1985	8,133	1,222		
1986	5,050	1,073	5,006	
1987	8,893	1,005	4,723	2,466
1988	5,683	677	5,245	3,177
1989	7,074	609	5,752	
1990	7,335	493	9,869	
1991	12,234	522	12,730	
1992	7,114	603	5,670	9,588
1993	8,337	243	5,277	13,779
1994	5,819	678	3,374	13,139
1995	6,371	399	3,499	16,048
1996	8,464	784	2,931	10,078
1997	7,952	472	3,245	25,850
1998	4,128	409	2,072	20,914
1999	6,150	506	4,814	20,804
2000	4,785	299	3,521	17,230
2001	4,498	272	5,784	20,794
Average	6,779	628	5,020	14,489
2002	6,430	289	7,295	24,834
% of average	95	46	146	171

[a] Includes Juneau Golden North Salmon Derby harvest.

Juneau originated in Alaska hatcheries, compared to the 1983–2001 average of 25%. An estimated 64% of the 2002 Chinook salmon harvest in Ketchikan originated in Alaskan hatcheries, a percentage also substantially higher than the average of 39%. The total hatchery contribution in Ketchikan of 70% was well above the average of 50%. Harvests of Alaska hatchery Chinook salmon are of value because these fish do not count toward the U.S./Canada Pacific Salmon Treaty catch quota while non-Alaskan hatchery fish do count toward the quota.

In Sitka, a much higher proportion of Chinook salmon originates in non-Alaska hatcheries than in Ketchikan or Juneau (Table 17 and Figure 4). In 2002, the total hatchery percentage of 30% in Sitka was below the average of 42%, and the Alaska hatchery percentage of 10% was slightly below the average of 13%.

COHO SALMON FISHERIES

The coho harvest in Southeast Alaska during 2002 was above average in all three major fisheries–Juneau, Ketchikan, and Sitka (Table 18). The 2002 harvest of 33,889 coho salmon in the Ketchikan area was 49% above the average of 22,775, and the Juneau area harvest of 26,273 coho salmon was 37% above the average of 19,224. The Juneau Golden North Salmon derby harvest of 4,824 coho salmon was 67% above the average of 2,886. The Sitka area harvest of 46,150 coho salmon was 59% above the average of 28,993.

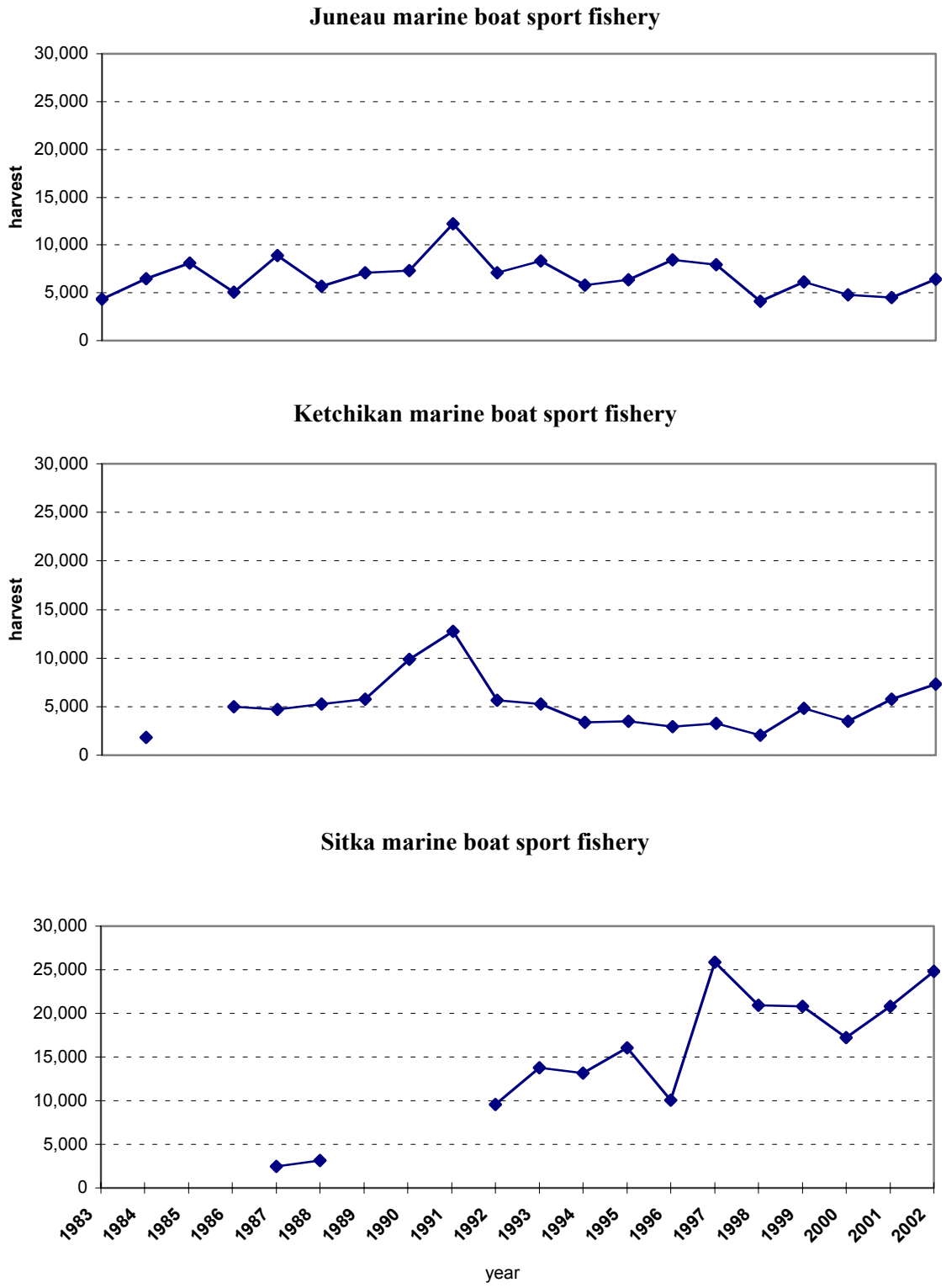

Figure 3.–Estimated harvest of Chinook salmon in the Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys.

Table 17.–Estimated contributions of hatchery-produced Chinook salmon to Juneau, Ketchikan and Sitka marine boat sport fisheries as determined by onsite creel surveys, 1983–2001.

Year	Juneau				Ketchikan				Sitka			
	Total	% of harvest	Alaska	% of harvest	Total	% of harvest	Alaska	% of harvest	Total	% of harvest	Alaska	% of harvest
1983	46	1	25	1	350	10	233	6				
1984	577	9	444	7	432	24	333	18				
1985	1,037	13	831	10	862	34	838	33				
1986	1,032	20	918	18	2,226	44	1,638	33				
1987	2,060	23	2,015	23	1,409	30	999	21	150	6	53	2
1988	1,210	21	979	17	1,747	33	1,405	27	1,026	32	66	2
1989	1,018	14	865	12	2,992	52	2,082	36				
1990	2,011	27	1,584	22	6,023	61	4,511	46				
1991[a]	4,279	37	2,957	26	8,373	66	7,035	55				
1992	2,958	42	1,762	25	3,628	64	2,604	46	4,074	42	1,092	11
1993	1,511	18	1,446	17	3,425	65	2,234	42	7,351	53	1,468	11
1994	2,127	37	1,895	33	2,393	71	1,378	41	6,210	47	1,642	12
1995	2,933	46	2,873	45	888	25	723	22	9,052	56	5,702	36
1996	2,430	29	2,360	28	1,576	54	1,131	39	2,966	29	1,730	17
1997[b]	2,055	26	1,730	22	1,098	35	1,059	34	14,131	55	2,755	11
1998[b]	1,607	39	1,509	37	1,647	79	1,014	49	10,302	49	875	4
1999[b]	2,399	39	2,398	39	2,703	56	2,306	48	8,377	40	2,532	12
2000[b]	2,805	59	2,768	58	1,848	52	1,783	51	5,149	30	1,557	9
2001[b]	2,549	57	2,543	57	4,311	75	4,216	73	4,717	23	3,063	15
Average	1,929	28	1,679	25	2,523	50	1,975	39	6,125	42	1,878	13
2002	3,959	62	3,839	60	5,125	70	4,650	64	7,445	30	2,377	10

[a] Juneau percentages for 1991 were calculated without including 803 Chinook salmon taken in strata which were not sampled for coded wire tags.

[b] Ketchikan estimates of total hatchery harvests are biased low because major access sites (Clover Pass or Salmon Falls) were not sampled.

Table 18.–Estimated harvest of coho salmon in the Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys for comparable sample periods, 1983–2002.

Year	Juneau[a]	Juneau Golden North Derby	Ketchikan	Sitka
1983	12,662	2,964	---	
1984	10,100	1,594	14,231	
1985	17,138	2,919	---	
1986	9,763	367	20,814	
1987	17,610	3,056	10,464	1,185
1988	12,017	1,453	5,525	616
1989	23,819	3,173	10,781	
1990	26,343	1,914	33,661	
1991	22,379	2,567	43,789	
1992	18,482	2,166	22,688	4,336
1993	15,921	2,031	18,703	14,166
1994	62,218	8,358	44,673	23,080
1995	15,172	2,914	19,165	12,015
1996	18,816	4,505	42,220	28,981
1997	12,477	1,919	14,204	30,789
1998	15,730	4,327	24,059	42,524
1999	26,604	4,324	20,719	73,757
2000	11,960	1,856	14,778	38,247
2001	16,036	2,339	26,693	78,218
Average	19,224	2,886	22,775	28,993
2002	26,273	4,824	33,889	46,150
% of average	137%	167%	149%	159%

[a] Includes Juneau Golden North Salmon Derby harvest.

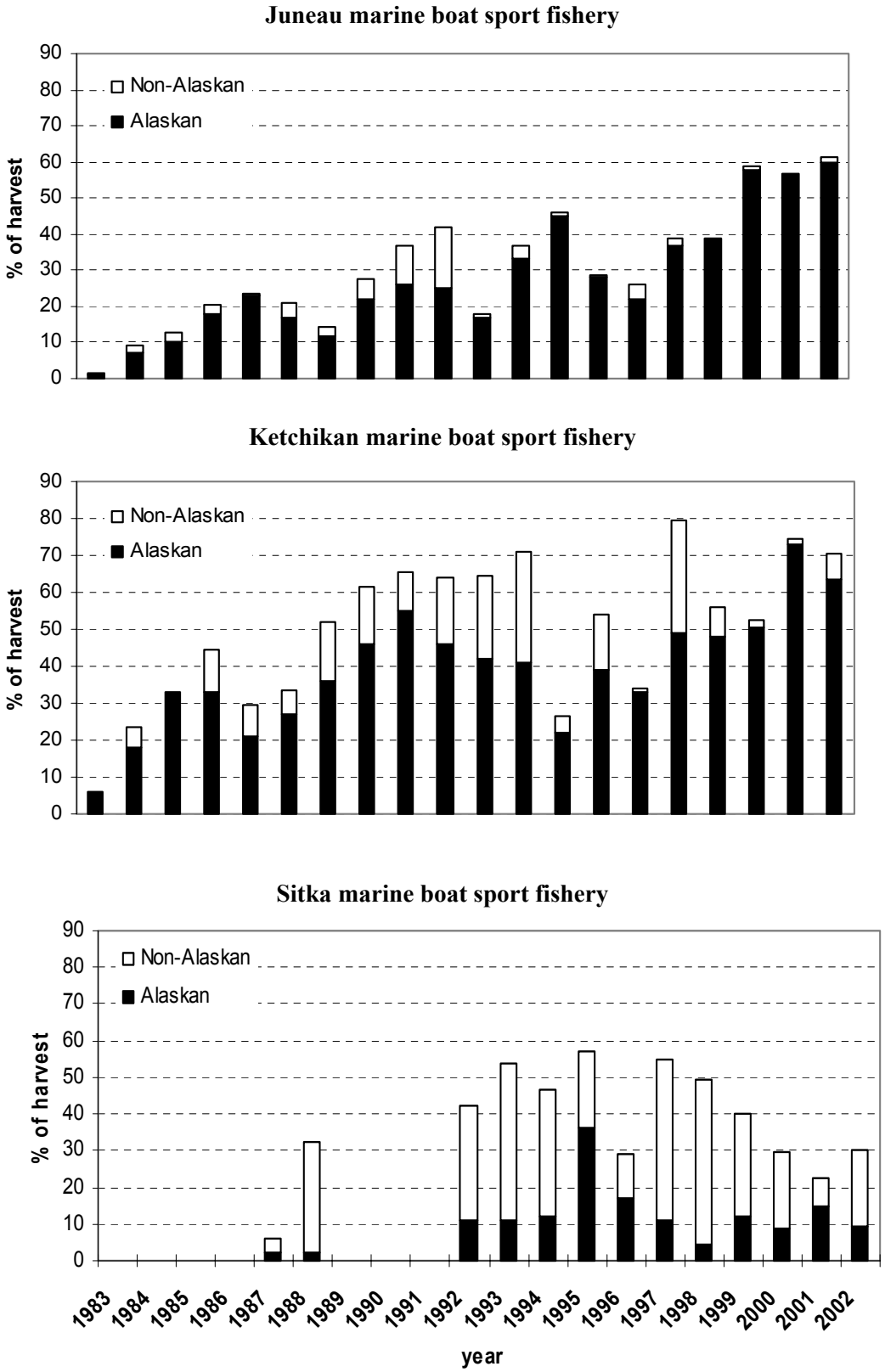

Figure 4.–Estimated contributions of hatchery-produced Chinook salmon to Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys.

Harvests of coho salmon in the Juneau, Ketchikan and Sitka areas are being increasingly supplemented by hatchery fish (Table 19). Hatchery coho salmon comprised 18% of the 2002 harvest in Juneau, well above the average of 10%. The Ketchikan fishery has been much more dependent upon hatchery coho salmon than has the Juneau fishery. In 2002, the estimated coho hatchery harvest of 11,780 in Ketchikan represented 35% of the 2002 harvest which equaled the average of 35% (Table 19). The contribution of 9,347 hatchery-produced coho salmon to the Sitka fishery represented 20% of the 2002 harvest. The average hatchery contribution in Sitka has been 20%.

BOTTOMFISH FISHERIES

The 2002 harvest of 6,172 Pacific halibut in the Juneau fishery was only 59% of the 1983–2001 average of 10,548 (Table 20). The Ketchikan halibut harvest of 7,009 was only 75% of the 1984–2001 average of 9,308. The numbers of Pacific halibut released in the Juneau and Ketchikan fisheries were similarly below average. The retention rate of 68% for Pacific halibut in Juneau was below the average of 72%, and the retention rate in Ketchikan (80%) equaled the 1984–2001 average of 80%. The decrease in Pacific halibut harvest in Ketchikan may in part be due to decreased bottomfish effort since 1995 (Figure 2 and Table 15), while in Juneau the fairly consistent bottomfish effort since 1983 coupled with decreasing harvests might indicate problems with localized depletion of Pacific halibut stocks.

The Sitka harvest of 34,260 Pacific halibut in 2002 was the highest recorded and nearly double the average harvest of 17,369 (Table 20). The Sitka retention rate of 81% in 2002 was above the average of 68%. The creel survey estimates of Pacific halibut harvest in Sitka have increased from a consistent level of 12,000 to 13,200 fish during 1992–96 to harvest levels ranging from 19,600 to 34,260 fish during 1997–2002, even though bottomfish effort in Sitka increased only slightly during 1997–2002 (Figure 2 and Table 15). The increase in Pacific halibut harvest in Sitka since 1997 coincides with an increased percentage of charter bottomfish effort and corresponding higher HPUE of the charter fishery (White and Jaenicke *Unpublished*). A nonresident annual bag limit for Chinook salmon in Southeast Alaska was first implemented in 1997. This regulation may have shifted more emphasis towards bottomfish fishing, especially on the outer coast port of Sitka where excellent Chinook HPUEs result in charter clients relatively quickly obtaining their Chinook salmon annual limits and then targeting bottomfish. The latter would be particularly true during May and June when other salmon species are not yet available in number.

Rockfish harvest in the 2002 Ketchikan fishery (3,627) was the third lowest recorded and only 42% of the 1984–2001 average of 8,624 (Table 21), probably due in part to decreased bottomfish effort in Ketchikan since 1995 (Figure 2 and Table 15). Retention of rockfish at 39% was below the 1986–2001 average of 45%. Targeted and non-targeted HPUE and CPUE for rockfish remained below levels of the late 1980s when the rockfish fishery peaked in the Ketchikan area.

SHELLFISH FISHERIES

Shellfish harvests in the Juneau and Ketchikan areas have been estimated with creel surveys since 1988 (Table 22). In 2002, the estimated shellfish effort of 4,767 boat-days in the Juneau area was above average, as was the harvest of 5,455 king crab. However, the Dungeness crab harvest was low, and the Tanner crab harvest was the lowest recorded in Juneau. The decreasing Dungeness crab harvest in Juneau during the last five years corresponds with decreasing commercial harvests in the Juneau area due to weak crab recruitment (Bishop et al. 2001). In Ketchikan, shellfish effort of 1,751 boat-days was 26% above the average of 1,394 boat-days, whereas the Dungeness crab harvest of 7,815 was 11% above the average of 7,059. A similar increase occurred in commercial Dungeness crabbing effort and harvest in the Ketchikan area over the last few years, although it is not known whether the local crab population has experienced better

Table 19.–Estimated contributions of hatchery-produced coho salmon to Juneau, Ketchikan, and Sitka marine boat sport fisheries as determined by onsite creel surveys, 1983–2002.

	Juneau		Ketchikan		Sitka	
Year	Total	% of harvest	Total	% of harvest	Total	% of harvest
1983	227	2				
1984	52	1	5,181	36		
1985	1,353	8				
1986	37	< 1	3,200	15		
1987	94	1	4,663	45	57	5
1988	262	2	292	5	218	35
1989	930	4	1,147	11		
1990	482	2	9,515	28		
1991[a]	2,526	12	18,627	43		
1992	905	5	9,588	42	1,264	29
1993	1,577	10	4,325	23	1,650	12
1994	8,260	13	14,491	32	4,773	21
1995	1,010	7	7,327	38	2,270	19
1996	3,276	17	16,841	40	5,224	18
1997[b]	2,162	17	5,822	41	4,798	16
1998[b]	3,597	23	12,455	52	8,906	21
1999[b]	5,306	20	6,843	33	19,772	27
2000[b]	2,398	20	7,948	54	7,421	19
2001[b]	2,694	17	7,715	29	12,827	16
Average	1,982	10	7,999	35	5,765	20
2002	4,808	18	11,780	35	9,347	20

[a] Juneau percentages for 1991 were calculated without including 1,111 coho salmon taken in strata which were not sampled for coded wire tags.

[b] Ketchikan estimates of total hatchery harvests are biased low because major access sites (Clover Pass or Salmon Falls) were not sampled.

Table 20.–Estimated harvest and catch of Pacific halibut in the Juneau, Ketchikan, and Sitka marine boat sport fisheries, 1983–2002.

	Juneau				Ketchikan				Sitka			
Year	Kept	Released	Total catch	Percent retained	Kept	Released	Total catch	Percent retained	Kept	Released	Total catch	Percent retained
1983	16,414	4,674	21,088	78								
1984	14,609	9,100	23,709	62	8,913	748	9,661	92				
1985	11,931	3,955	15,886	75								
1986	13,132	6,868	20,000	66	8,208	1,577	9,785	84				
1987	13,513	10,357	23,870	57	10,493	3,390	13,883	76	8,314	7,214	15,528	54
1988	12,672	5,027	17,699	72	7,317	1,338	8,655	85	6,923	5,962	12,885	54
1989	12,484	2,406	14,890	84	10,797	1,256	12,053	90				
1990	11,774	4,018	15,792	75	7,419	1,281	8,700	85				
1991	8,611	2,363	10,974	78	9,650	1,125	10,775	90				
1992	9,265	2,554	11,819	78	10,257	2,582	12,839	80	12,549	3,927	16,476	76
1993	6,928	2,652	9,580	72	12,783	4,443	17,226	74	12,720	4,289	17,009	75
1994	8,843	4,047	12,890	69	10,960	2,849	13,809	69	13,185	5,233	18,418	72
1995	9,252	3,234	12,486	74	19,675	7,089	26,764	74	13,151	5,963	19,114	69
1996	11,158	3,183	14,341	78	11,177	4,052	15,229	73	12,015	5,859	17,874	67
1997	12,547	5,701	18,248	69	7,983	3,566	11,549	69	21,852	13,518	35,370	62
1998	8,200	2,198	10,398	79	6,778	2,335	9,113	74	19,640	9,704	29,344	67
1999	8,104	2,986	11,090	73	5,126	961	6,087	84	27,967	13,580	41,547	67
2000	6,169	1,706	7,875	78	6,039	998	7,037	86	31,110	14,100	45,210	69
2001	4,802	1,306	6,108	79	4,664	1,013	5,677	82	29,006	7,274	36,280	80
Average	10,548	4,070	14,671	72	9,308	2,388	11,697	80	17,369	8,052	25,421	68
2002	6,172	2,920	9,092	68	7,009	1,802	8,811	80	34,260	7,972	42,232	81
% of average	59	72	62		75	75	75		197	99	166	

Table 21.–Comparative effort and catch statistics for the Ketchikan rockfish sport fishery, 1984–2002.

		Angler effort		Total rockfish harvest and catch				Harvest per unit effort[g]		Catch per unit effort[g]	
Year	Survey dates	Total angler-hours	Bottomfish-hours	Harvest	Released	Total catch	% harvest	Targeted[a]	Non-targeted[b]	Targeted[c]	Non-targeted[d]
1984	4/29–9/29	223,725	62,625	9,805	---	---	---	0.16	0.04	---	---
1985[e]	4/15–6/30	---	---	---	---	---	---	---	---	---	---
1986	4/28–9/28	184,726	51,208	6,017	7,527	13,544	44	0.12	0.03	0.54	0.19
1987	4/20–9/27	242,274	84,954	18,591	27,539	46,130	40	0.22	0.08	0.26	0.07
1988	4/11–9/25	225,779	71,611	17,477	15,516	32,993	53	0.24	0.08	0.46	0.15
1989	4/24–9/24	276,516	79,958	11,224	6,742	17,966	62	0.14	0.04	0.22	0.06
1990	5/07–9/23	248,618	49,347	9,561	9,132	18,693	51	0.19	0.04	0.38	0.08
1991	4/29–9/29	343,698	67,842	12,442	10,714	23,156	54	0.18	0.04	0.34	0.07
1992	4/27–9/27	261,635	69,366	8,149	15,272	23,424	35	0.12	0.03	0.34	0.09
1993	4/26–9/26	276,969	78,002	10,573	15,192	25,765	41	0.14	0.04	0.33	0.09
1994	4/25–9/25	286,464	56,092	5,604	8,283	13,887	40	0.12	0.03	0.30	0.08
1995	4/24–9/24	277,146	101,381	10,132	13,015	23,147	44	0.10	0.04	0.23	0.08
1996	5/06–10/06	253,977	62,673	5,492	7,401	12,893	43	0.09	0.02	0.21	0.05
1997[f]	4/28–9/28	199,977	55,242	6,514	9,806	16,320	40	0.12	0.03	0.30	0.08
1998[f]	4/27–9/27	205,063	41,194	3,864	6,964	10,828	36	0.09	0.02	0.26	0.05
1999[f]	4/26–9/26	169,693	33,360	3,282	4,838	8,120	40	0.10	0.02	0.24	0.05
2000[f]	4/24–9/24	162,344	38,340	4,784	6,172	10,956	44	0.12	0.03	0.29	0.07
2001[f]	5/07–9/23	168,123	32,555	3,089	5,036	8,125	38	0.09	0.02	0.25	0.05
Average		235,690	60,926	8,624	10,498	19,122	45	0.14	0.04	0.31	0.08
2002	4/29–9/29	232,316	40,306	3,627	5,773	9,400	39	0.09	0.02	0.23	0.04
% of average		99	66	42	55	49		64	43	74	50

[a] Rockfish harvest per bottomfish-hour of effort.

[b] Rockfish harvest per angler-hour of effort.

[c] Rockfish total catch per bottomfish-hour of effort.

[d] Rockfish total catch per angler-hour of effort.

[e] Data in 1985 are not comparable because the creel survey lasted only through 30 June, instead of late September.

[f] Ketchikan estimates are biased low because a major access site (Clover Pass or Salmon Falls) was not sampled.

[g] Bottomfish effort may or may not be specifically targeting rockfish, therefore, resulting computations of HPUE and CPUE may be biased.

Table 22.–Comparison of estimated shellfish effort and harvest for the Juneau and Ketchikan marine boat fisheries, 1988–2002.

Fishery	Year	Effort (boat-days)	Dungeness crab harvest	Tanner crab harvest	King crab harvest	Shrimp harvest
Juneau	1988	2,287	6,459	3,042	552	
	1989	2,652	8,356	3,369	1,849	
	1990	2,622	6,289	1,883	1,960	
	1991	3,812	13,433	1,294	2,467	
	1992	5,411	12,675	1,034	5,673	
	1993	6,013	11,980	1,557	8,963	
	1994	5,486	6,786	2,328	5,925	
	1995	5,161	10,460	2,161	4,598	
	1996	5,036	15,605	2,134	4,826	
	1997	5,382	12,440	1,348	4,839	
	1998	5,551	8,112	768	5,310	
	1999	5,130	5,599	1,773	7,339	
	2000	5,209	5,716	791	6,583	
	2001	5,466	6,093	738	6,212	
	Average	4,657	9,286	1,730	4,793	
	2002	4,767	7,270	506	5,455	
Ketchikan	1988	1,398	9,043	0	0	27,643
	1989	508	2,688	100	0	12,730
	1990	614	3,367	0	0	17,130
	1991	1,394	7,631	0	0	69,450
	1992	1,387	10,227	0	0	130,720
	1993	1,973	8,897	0	0	37,060
	1994	1,439	7,032	0	0	34,580
	1995	2,590	14,258	0	0	164,390
	1996	1,255	5,528	0	0	76,840
	1997	1,566	6,224	0	0	51,150
	1998	743	4,190	210	0	99,680
	1999	1,211	4,959	0	0	57,920
	2000	1,739	10,786	0	0	156,990
	2001	1,704	4,002	0	0	99,190
	Average	1,394	7,059	22	0	73,962
	2002	1,751	7,815	0	0	126,880

recruitment recently or if simply there is more interest by commercial fishers in targeting Dungeness crab (Bishop et al. 2001). Shrimp harvest in the Ketchikan area during 2002 (126,880 shrimp) was 72% above average and can be attributed in part to the increased shellfish effort in Ketchikan.

CONCLUSIONS AND RECOMMENDATIONS

The primary goals of this project, to estimate harvest and Alaska hatchery contributions of Chinook salmon in selected sport fisheries of Southeast Alaska within specified levels of precision, were obtained.

Many changes have occurred in Southeast Alaska marine boat sport fisheries over the past decade. While the monitored Juneau and Ketchikan sport fisheries have declined in the last few years, the Sitka fishery has grown substantially. Due in part to its geographic location, sport harvests of Chinook salmon, coho salmon, and Pacific halibut in the Sitka fishery were again the largest in the region during 2002. It is expected that growth in the Sitka fishery will continue as tourism and associated nonresident effort increases in Southeast Alaska.

Wild stocks of fish have historically supported most sport fisheries in Southeast Alaska, but increasing enhancement efforts have led to increased harvests of hatchery Chinook and coho salmon. In 2002, the contributions of hatchery Chinook and coho salmon to the Ketchikan fishery were 70% and 35%, respectively. During 2002, about 28% of the Chinook salmon and 24% of the coho salmon taken in the combined Ketchikan, Sitka, and Juneau marine fisheries originated in Alaska hatcheries. An additional 15% of the Chinook harvest originated in non-Alaskan hatcheries. These enhancement efforts are costly, and catch monitoring through the use of onsite survey programs is the primary means to evaluate and document the success of hatchery programs in producing fish for sport anglers.

Wild stock evaluation programs, using coded wire tagging of both Chinook and coho salmon, have been implemented in Southeast Alaska, and others are being planned. Tag recoveries from the sport fisheries are necessary to improve knowledge of wild stock contributions to the fisheries. It is recommended that onsite creel surveys and catch sampling programs of marine boat sport fisheries be continued in order to both evaluate the effectiveness of stocking programs and to provide information about wild stock composition.

In March 1992, the Alaska Board of Fisheries allocated the Southeast Alaska Chinook salmon quota, established under the U.S./Canada Pacific Salmon Treaty, between commercial and sport fisheries. The board also adopted a management plan for the Chinook sport fishery, which has since been revised several times, to help achieve its allocation. In 2002, sampling of all major boat sport fisheries, including those in Ketchikan, Juneau, and Sitka, was necessary in order to estimate the total Southeast Alaska sport harvest of Chinook salmon so that all Southeast Alaska fisheries could be better managed to achieve the Chinook quota. These sampling efforts, along with coded wire tag sampling programs in Craig/Klawock, Petersburg, Wrangell, and Gustavus, were also necessary to better document harvests of Alaska hatchery fish for catch reporting required by the Pacific Salmon Treaty. We recommend continuation of this expanded program.

Data from marine boat surveys are also used for a variety of other purposes including preparation of public information documents and position statements on proposed regulation changes. It is recommended that collection of current data on sport fisheries for coho salmon, Pacific halibut, rockfish, and lingcod be continued in order to improve management of these species. It is also recommended that estimation of the shellfish harvest as a component of the marine harvest studies be continued to provide information for evaluating the performance of this fishery and for addressing potential regulatory changes via the Alaska Board of Fisheries process.

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APPENDIX A: CREEL SURVEY AND CATCH SAMPLING STATISTICS

Appendix A1.–Estimated effort, harvest, and total catches for the Ketchikan marine boat sport fishery, 29 April–29 September 2002.

	Estimate	Standard error	Relative precision[a]
Finfish effort			
Boat-hours	81,957	4,002	8%
Salmon-hours	192,010	12,697	11%
Bottomfish-hours	40,306	3,088	12%
Angler-hours	232,316	13,513	10%
Boat-days	20,555	982	8%
Finfish harvests[b]			
Total Chinook salmon ≥ 28”	7,161	569	13%
Derby take-home & entered	1,410	119	14%
Total Chinook salmon < 28”	134	47	58%
Coho salmon	33,889	3,023	15%
Pink salmon	43,063	7,489	24%
Chum salmon	1,966	444	37%
Sockeye salmon	22	13	97%
Pacific halibut	7,009	751	18%
Lingcod	617	122	33%
Total rockfish	3,627	399	18%
Quillback rockfish	693	145	34%
Dusky rockfish	129	45	57%
Copper rockfish	206	104	83%
Black rockfish	295	114	64%
Yelloweye rockfish	751	147	32%
Silvergrey rockfish	172	48	46%
Other pelagic rockfish	189	129	112%
Other non-pelagic rockfish	52	20	63%
Unidentified rockfish	1,140	180	26%
Finfish total catch[b]			
Chinook salmon ≥ 28”	8,092	689	14%
Chinook salmon < 28”	8,185	908	18%
Coho salmon	38,964	3,311	14%
Pink salmon	52,133	8,293	26%
Chum salmon	2,194	461	35%
Sockeye salmon	22	13	97%
Pacific halibut	8,811	974	18%
Lingcod	2,020	497	40%
Total rockfish	9,400	939	16%
Shellfish effort and harvest[b]			
Boat-days fished	1,751	162	15%
Pots or rings	6,400	554	14%
Crab boat-days fished	938	98	17%
Crab pots or rings	2,584	288	18%
Dungeness crab kept	7,815	980	21%
Shrimp kept	126,880	6,306	8%

[a] Relative precision ($\alpha = 0.10$) = (SE * 1.645 / estimate) * 100.

[b] No steelhead trout, cutthroat trout, Dolly Varden, king crab or Tanner crab were caught or harvested.

Appendix A2.–Estimated effort, harvest, and total catches for the Juneau marine boat sport fishery, 29 April–29 September 2002.

	Estimate	Standard error	Relative precision[a]
Finfish effort			
Boat-hours	91,812	5,136	9%
Salmon-hours	196,573	13,810	12%
Bottomfish-hours	42,072	3,980	16%
Angler-hours	238,746	15,422	11%
Boat-days	23,093	1,176	8%
Finfish harvests[b]			
Total Chinook salmon ≥ 28”	6,329	530	14%
Derby take-home	53	12	37%
Derby entered	237	0	0%
Derby take-home & entered	290	12	14%
Total Chinook salmon < 28”	101	25	41%
Coho salmon	26,273	3,239	20%
Derby take-home	1,818	396	36%
Derby entered	4,824	0	0%
Derby take-home & entered	6,642	396	10%
Chum salmon	713	109	25%
Derby take-home	31	10	53%
Derby entered	8	0	0%
Derby take-home & entered	39	10	42%
Sockeye salmon	57	40	115%
Pink salmon	2,763	430	26%
Pacific halibut	6,172	625	17%
Total rockfish	534	165	51%
Lingcod	9	9	165%
Dolly Varden	101	29	47%
Finfish total catch[b]			
Chinook salmon ≥ 28”	6,724	570	14%
Chinook salmon < 28”	5,487	776	23%
Coho salmon	27,323	3,329	20%
Chum salmon	884	128	24%
Sockeye salmon	57	40	115%
Pink salmon	5,460	677	20%
Pacific halibut	9,092	1,085	20%
Total rockfish	811	305	62%
Lingcod	253	225	47%
Dolly Varden	346	103	49%
Shellfish effort and harvest			
Boat-days fished	4,767	303	10%
Pots or rings	8,632	613	12%
King crab boat-days fished	4,454	281	10%
King crab pots or rings	7,619	547	12%
King crab kept	5,455	555	17%
Dungeness crab kept	7,270	755	17%
Tanner crab kept	506	96	31%

[a] Relative precision ($\alpha = 0.10$) = (SE * 1.645 / estimate) * 100.

[b] No steelhead or cutthroat trout were caught or harvested.

Appendix A3.–Estimated effort, harvest, and total catches for the Sitka marine boat sport fishery, 29 April–29 September 2002.

	Estimate	Standard error	Relative precision[a]
Finfish effort			
Boat-hours	68,289	3,340	8%
Salmon-hours	145,123	7,952	9%
Bottomfish-hours	66,305	5,512	14%
Angler-hours	211,472	11,660	9%
Boat-days	19,521	987	8%
Finfish harvests[b]			
Total Chinook salmon ≥ 28”	24,834	1,636	11%
Derby take-home	1,096	143	21%
Derby entered	728	0	0%
Derby take-home & entered	1,824	143	13%
Total Chinook salmon < 28”	0	0	0%
Coho salmon	46,150	5,257	19%
Chum salmon	661	116	29%
Sockeye salmon	356	166	77%
Pink salmon	5,719	908	26%
Pacific halibut	34,260	3,043	15%
Lingcod	1,946	270	23%
Total rockfish	14,174	1,169	14%
Quillback rockfish	121	54	73%
Dusky rockfish	69	22	52%
Copper rockfish	107	36	55%
Black rockfish	3,105	549	29%
Yelloweye rockfish	5,613	588	17%
Silvergrey rockfish	113	45	66%
Other pelagic rockfish	674	149	36%
Other non-pelagic rockfish	327	90	45%
Unidentified rockfish	3,729	582	26%
Dolly Varden	12	8	110%
Finfish total catch[b]			
Chinook salmon ≥ 28”	34,429	2,690	13%
Chinook salmon < 28”	2,380	263	18%
Coho salmon	47,952	5,415	19%
Sockeye salmon	356	166	77%
Chum salmon	969	219	37%
Pink salmon	12,965	1,928	24%
Pacific halibut	42,232	3,840	15%
Lingcod	10,271	1,323	21%
Unidentified rockfish	16,816	1,268	12%
Total rockfish	27,497	1,796	11%
Dolly Varden	118	91	127%

[a] Relative precision ($\alpha = 0.10$) = (SE * 1.645 / estimate) * 100.

[b] No steelhead trout or cutthroat trout were caught or harvested; shellfish effort, catch and harvest were not recorded.

Appendix A4.–Estimated effort, harvest and catch for the Ketchikan marine boat sport fishery by seasonal period, 29 April–29 September 2002.

Seasonal period	Boat-hours		Salmon-hours		Bottomfish-hours		Angler-hours	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	747	193,638	1,382	705,640	261	31,754	1,642	772,967
13May–26May	2,316	288,612	4,447	1,356,357	944	57,169	5,391	1,669,386
Derby[a]	8,833	2,287,831	20,968	12,149,795	1,240	92,380	22,208	13,523,952
27May–09Jun	2,404	526,639	5,412	2,676,723	1,101	417,576	6,514	4,128,866
10Jun–23Jun	9,449	2,717,181	22,967	32,456,999	5,237	806,209	28,204	35,487,524
24Jun–07Jul	7,977	1,287,792	18,433	10,224,400	4,509	1,943,736	22,942	18,299,188
08Jul–21Jul	11,486	3,013,783	29,685	46,467,350	6,496	2,189,018	36,181	50,639,851
22Jul–04Aug	9,459	1,638,584	23,247	22,260,234	8,157	2,475,189	31,404	24,891,074
05Aug–18Aug	8,794	581,724	17,300	14,793,662	7,363	910,973	24,663	13,047,191
19Aug–01Sep	7,799	1,142,437	20,865	8,198,904	2,230	295,814	23,095	8,920,069
02Sep–15Sep	7,839	1,634,329	17,047	7,520,413	1,682	254,882	18,729	8,546,994
16Sep–29Sep	4,854	701,248	10,257	2,403,453	1,086	62,363	11,343	2,670,569
Total	81,957	16,013,798	192,010	161,213,930	40,306	9,537,063	232,316	182,597,631

Seasonal period	Boat-days		Chinook salmon ≥ 28" total catch		Chinook salmon ≥ 28" harvested		Chinook salmon < 28" total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	196	10,932	46	685	46	685	13	146
13May–26May	723	28,882	168	9,142	168	9,142	98	5,395
Derby[a]	1,664	81,693	1,487	13,772	1,410	8,166	1,189	82,136
27May–09Jun	572	29,555	304	16,628	304	16,628	167	11,750
10Jun–23Jun	2,461	197,513	2,081	235,027	1,846	155,036	561	60,256
24Jun–07Jul	2,179	111,941	1,890	109,677	1,744	89,176	415	13,563
08Jul–21Jul	3,119	204,985	1,351	63,335	1,080	35,457	1,141	113,436
22Jul–04Aug	2,530	103,152	437	18,175	327	8,038	296	9,242
05Aug–18Aug	2,323	30,912	173	7,036	103	859	492	9,620
19Aug–01Sep	1,776	44,578	110	528	97	440	1,401	163,778
02Sep–15Sep	1,812	84,575	45	526	36	380	1,466	317,415
16Sep–29Sep	1,200	35,731	0	0	0	0	946	38,011
Total	20,555	964,449	8,092	474,531	7,161	324,007	8,185	824,748

Seasonal period	Chinook salmon < 28" harvested		Coho salmon total catch		Coho salmon harvested		Pink salmon total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	0	0	0	0
Derby[a]	7	20	35	127	14	55	0	0
27May–09Jun	0	0	0	0	0	0	0	0
10Jun–23Jun	10	34	169	8,452	87	1,273	0	0
24Jun–07Jul	6	28	2,330	562,871	2,194	482,449	5,068	9,503,968
08Jul–21Jul	60	966	5,381	1,526,880	5,103	1,453,820	13,874	9,381,106
22Jul–04Aug	37	983	3,281	638,106	3,083	574,105	20,048	35,784,243
05Aug–18Aug	14	154	5,115	2,104,401	4,975	1,977,143	9,039	13,810,801
19Aug–01Sep	0	0	7,068	1,517,427	5,116	916,237	3,547	269,192
02Sep–15Sep	0	0	10,024	3,743,310	8,416	2,928,982	544	22,611
16Sep–29Sep	0	0	5,561	858,300	4,901	805,802	13	50
Total	134	2,185	38,964	10,959,874	33,889	9,139,866	52,133	68,771,971

-continued-

Appendix A4.–Page 2 of 4.

Seasonal period	Pink salmon harvested		Chum salmon total catch		Chum salmon harvested		Sockeye salmon catch and harvest	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May Derby[a]	0	0	10	15	7	16	0	0
27May–09Jun	0	0	0	0	0	0	0	0
10Jun–23Jun	0	0	8	49	8	49	5	23
24Jun–07Jul	3,927	5,230,170	356	71,303	356	71,303	6	32
08Jul–21Jul	10,981	7,150,906	1,082	118,938	990	110,844	0	0
22Jul–04Aug	17,646	30,442,547	550	20,659	451	12,893	11	108
05Aug–18Aug	7,534	13,058,374	98	1,431	98	1,431	0	0
19Aug–01Sep	2,821	192,943	36	198	28	128	0	0
02Sep–15Sep	148	3,079	35	107	22	71	0	0
16Sep–29Sep	6	32	19	56	6	10	0	0
Total	43,063	56,078,051	2,194	212,756	1,966	196,745	22	163

Seasonal period	Pacific halibut total catch		Pacific halibut harvested		Rockfish total catch		Rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	16	224	16	224	80	4,064	32	464
13May–26May Derby[a]	56	1,124	56	1,124	219	6,173	126	1,732
27May–09Jun	406	11,812	330	9,803	719	29,915	169	2,238
10Jun–23Jun	302	27,131	201	10,501	239	10,327	97	3,157
24Jun–07Jul	1,351	124,182	770	32,788	1,527	181,822	448	25,519
08Jul–21Jul	1,337	230,797	955	108,446	601	21,647	154	2,538
22Jul–04Aug	1,416	106,187	1,189	62,501	1,732	392,578	552	57,932
05Aug–18Aug	1,506	97,937	1,326	85,245	1,698	110,978	714	32,777
19Aug–01Sep	1,694	326,841	1,547	237,604	1,284	53,596	781	17,501
02Sep–15Sep	469	17,779	392	11,872	520	45,261	226	8,462
16Sep–29Sep	164	3,800	142	2,891	416	17,222	126	3,297
Total	94	1,227	85	1,238	365	8,253	202	3,467
	8,811	949,041	7,009	564,237	9,400	881,836	3,627	159,084

Seasonal period	Lingcod total catch		Lingcod harvested		Quillback rockfish harvested		Dusky rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May Derby[a]	16	224	16	224	44	548	0	0
27May–09Jun	188	4,715	55	256	10	40	3	8
10Jun–23Jun	48	996	38	904	0	0	0	0
24Jun–07Jul	675	185,122	84	1,798	135	9,570	0	0
08Jul–21Jul	58	1,724	44	885	28	353	14	182
22Jul–04Aug	322	21,235	137	3,491	47	532	32	462
05Aug–18Aug	266	15,527	80	1,676	180	6,139	12	54
19Aug–01Sep	401	16,837	144	5,636	114	1,722	33	1,002
02Sep–15Sep	25	190	7	35	83	1,661	19	195
16Sep–29Sep	15	37	12	35	14	104	10	71
Total	6	10	0	0	38	490	6	20
	2,020	246,617	617	14,940	693	21,159	129	1,994

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Appendix A4.–Page 3 of 4.

Seasonal period	Copper rockfish harvested		Black rockfish harvested		Other pelagic rockfish harvested		Yelloweye rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	16	224
13May–26May Derby[a]	36	1,188	0	0	0	0	16	224
27May–09Jun	9	18	3	8	11	43	23	150
10Jun–23Jun	0	0	0	0	0	0	8	49
24Jun–07Jul	10	80	30	780	20	320	52	386
08Jul–21Jul	8	53	6	28	0	0	14	182
22Jul–04Aug	9	70	53	2,524	133	15,778	138	3,929
05Aug–18Aug	27	295	110	7,940	0	0	149	1,443
19Aug–01Sep	98	9,016	61	1,450	0	0	221	13,290
02Sep–15Sep	9	31	4	9	0	0	64	1,262
16Sep–29Sep	0	0	9	32	25	395	14	104
Total	206	10,751	295	13,063	189	16,536	751	21,536

Seasonal period	Silvergrey rockfish harvested		Other non-pelagic rockfish harvested		Unidentified rockfish total catch		Unidentified rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	64	3,840	16	240
13May–26May Derby[a]	0	0	0	0	123	2,284	30	750
27May–09Jun	0	0	4	10	655	27,580	105	1,563
10Jun–23Jun	8	49	0	0	224	8,800	82	2,440
24Jun–07Jul	33	748	0	0	1,247	143,909	168	4,764
08Jul–21Jul	0	0	0	0	531	18,970	84	1,530
22Jul–04Aug	14	182	19	202	1,287	318,184	107	2,802
05Aug–18Aug	44	493	7	43	1,170	80,401	185	3,412
19Aug–01Sep	45	514	5	17	709	44,865	205	12,919
02Sep–15Sep	23	285	0	0	318	19,252	24	130
16Sep–29Sep	5	24	11	97	327	13,822	37	479
Total	0	0	6	32	260	4,917	97	1,201
	172	2,295	52	401	6,915	686,824	1,140	32,230

Seasonal period	Shellfish boat-days		Shellfish pots or rings		Crab boat-days		Crab pots or rings	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	41	825	203	21,525	16	240	64	3,840
13May–26May Derby[a]	90	878	406	32,822	42	278	102	1,958
27May–09Jun	67	244	176	2,899	54	216	120	1,671
10Jun–23Jun	15	77	38	509	15	77	38	509
24Jun–07Jul	164	2,326	791	65,846	93	1,091	366	26,311
08Jul–21Jul	285	2,626	830	24,829	175	878	460	9,975
22Jul–04Aug	213	10,504	608	23,421	143	3,934	427	18,643
05Aug–18Aug	314	2,690	1,019	54,645	184	1,398	415	8,568
19Aug–01Sep	255	3,126	1,224	33,939	103	715	351	8,547
02Sep–15Sep	79	403	264	8,316	43	186	106	852
16Sep–29Sep	128	2,048	293	8,383	50	520	76	1,019
Total	100	582	548	30,248	20	97	59	1,300
	1,751	26,329	6,400	307,382	938	9,630	2,584	83,193

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Appendix A4.–Page 4 of 4.

Seasonal period	Dungeness crab total catch		Dungeness crab harvested		Shrimp harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	64	3,840	32	960	11,090	11,318,630
13May–26May	668	134,480	436	71,288	4,660	910,220
Derby[a]	968	243,891	449	50,545	2,730	196,410
27May–09Jun	263	24,929	203	20,629	0	0
10Jun–23Jun	2,526	1,168,496	947	173,102	9,380	3,453,780
24Jun–07Jul	4,464	829,736	1,536	169,601	8,540	1,227,910
08Jul–21Jul	5,075	4,284,344	1,590	295,087	3,880	773,270
22Jul–04Aug	5,298	3,014,427	1,378	118,535	19,680	3,679,860
05Aug–18Aug	2,513	547,786	695	33,141	26,680	4,472,590
19Aug–01Sep	956	125,397	266	14,023	8,700	4,104,530
02Sep–15Sep	675	82,566	235	12,177	14,250	4,554,790
16Sep–29Sep	417	69,561	48	694	17,290	5,078,690
Total	23,887	10,529,453	7,815	959,782	126,880	39,770,680

[a] Includes 1,054 large Chinook salmon entered in the Ketchikan derby.

Appendix A5.–Estimated effort, harvest and catch for the Juneau marine boat sport fishery by seasonal period, 29 April–29 September 2002.

Seasonal	Boat-hours		Salmon-hours		Bottomfish-hours		Angler-hours	
period	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	5,825	1,715,732	11,381	6,956,030	128	14,848	11,509	6,901,267
13May–26May	10,784	4,546,145	23,808	20,372,024	153	5,103	23,991	20,505,109
27May–09Jun	12,236	2,101,457	26,735	10,341,270	1,310	134,987	28,053	11,196,867
10Jun–23Jun	9,810	1,343,437	20,113	10,442,294	6,178	4,104,300	26,307	16,204,233
24Jun–07Jul	7,893	1,255,540	13,011	4,316,031	9,536	5,195,574	22,547	15,924,146
08Jul–21Jul	7,230	972,678	12,279	6,195,071	8,573	2,115,654	20,852	11,898,727
22Jul–04Aug	8,895	1,707,844	16,800	20,368,639	7,626	1,042,283	24,426	23,338,987
05Aug–18Aug	7,959	1,929,189	19,284	15,959,421	4,947	2,738,405	24,278	29,415,233
Derby[a]	12,715	6,540,475	32,825	52,220,817	858	38,403	33,683	52,439,200
19Aug–01Sep	3,570	3,175,090	10,320	36,284,708	862	181,563	11,182	41,152,157
02Sep–15Sep	3,534	758,113	7,129	4,298,385	1,123	126,330	8,252	5,362,035
16Sep–29Sep	1,361	337,068	2,888	2,966,477	778	141,527	3,666	3,502,049
Total	91,812	26,382,768	196,573	190,721,167	42,072	15,838,977	238,746	237,840,010

Seasonal	Boat-days		Chinook salmon ≥ 28" total catch		Chinook salmon ≥ 28" harvested		Chinook salmon < 28" total catch	
Period	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	1,623	125,822	304	10,433	304	10,433	51	711
13May–26May	2,616	221,457	964	58,656	948	57,056	183	3,298
27May–09Jun	3,035	104,762	1,856	86,900	1,754	78,064	373	13,147
10Jun–23Jun	2,611	98,938	1,249	50,461	1,221	48,829	320	24,596
24Jun–07Jul	2,135	72,633	1,233	94,598	1,121	71,163	480	18,883
08Jul–21Jul	1,969	70,539	202	2,663	190	2,501	441	22,022
22Jul–04Aug	2,546	154,221	167	2,603	151	2,334	1,036	263,777
05Aug–18Aug	2,234	138,065	349	16,004	278	9,012	897	60,521
Derby[a]	1,865	118,640	312	465	290	135	1,346	144,306
19Aug–01Sep	902	166,735	50	2,290	40	1,465	252	46,833
02Sep–15Sep	1,084	74,512	32	294	32	294	64	2,326
16Sep–29Sep	473	36,795	6	25	0	0	44	1,848
Total	23,093	1,383,119	6,724	325,392	6,329	281,286	5,487	602,268

Seasonal	Chinook salmon < 28" harvested		Coho salmon total catch		Coho salmon harvested		Pink salmon total catch	
Period	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	0	0	0	0
27May–09Jun	8	48	6	30	6	30	0	0
10Jun–23Jun	8	24	40	404	40	404	20	204
24Jun–07Jul	74	505	174	4,292	169	4,233	299	9,654
08Jul–21Jul	0	0	2,159	459,756	2,056	440,494	2,525	327,918
22Jul–04Aug	9	69	3,556	680,678	3,417	617,744	1,246	65,058
05Aug–18Aug	0	0	8,918	5,493,442	8,480	5,104,552	953	45,394
Derby[a]	2	0	6,892	192,941	6,642	156,514	297	4,582
19Aug–01Sep	0	0	2,833	3,395,753	2,763	3,349,739	81	4,894
02Sep–15Sep	0	0	2,156	638,765	2,111	600,581	39	892
16Sep–29Sep	0	0	589	217,198	589	217,198	0	0
Total	101	646	27,323	11,083,259	26,273	10,491,489	5,460	458,596

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Appendix A5.–Page 2 of 3.

Seasonal Period	Pink salmon harvested		Chum salmon total catch		Chum salmon harvested		Sockeye salmon catch and harvest	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	0	0	0	0
27May–09Jun	0	0	8	24	8	24	0	0
10Jun–23Jun	4	12	38	234	38	234	0	0
24Jun–07Jul	184	4,218	266	5,755	207	3,162	0	0
08Jul–21Jul	1,436	139,230	213	4,821	182	4,446	7	46
22Jul–04Aug	735	34,634	137	2,114	106	1,439	50	1,559
05Aug–18Aug	317	6,099	124	2,537	99	1,996	0	0
Derby[a]	61	126	64	329	39	107	0	0
19Aug–01Sep	20	366	0	0	0	0	0	0
02Sep–15Sep	6	35	6	35	6	35	0	0
16Sep–29Sep	0	0	28	487	28	487	0	0
Total	2,763	184,720	884	16,336	713	11,930	57	1,605

Seasonal Period	Pacific halibut total catch		Pacific halibut harvested		Rockfish total catch		Rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	24	528	0	0	0	0	0	0
13May–26May	5	16	5	16	0	0	0	0
27May–09Jun	510	45,776	344	9,898	45	1,158	45	1,158
10Jun–23Jun	971	119,651	739	49,579	332	85,236	164	20,276
24Jun–07Jul	1,783	258,655	1,218	100,380	78	789	30	186
08Jul–21Jul	2,741	475,709	1,755	122,991	104	850	86	606
22Jul–04Aug	1,586	139,359	1,058	50,020	124	1,494	98	1,356
05Aug–18Aug	1,047	128,094	721	51,935	33	284	25	266
Derby[a]	209	2,637	165	2,003	28	119	25	133
19Aug–01Sep	71	2,727	40	1,465	61	3,297	61	3,297
02Sep–15Sep	90	2,090	83	1,670	6	35	0	0
16Sep–29Sep	55	1,337	44	1,238	0	0	0	0
Total	9,092	1,176,579	6,172	391,195	811	93,262	534	27,278

Seasonal Period	Lingcod total catch		Lingcod harvested		Dolly Varden total catch		Dolly Varden harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	48	584	14	70
27May–09Jun	9	78	9	78	152	7,389	17	102
10Jun–23Jun	240	50,400	0	0	58	702	38	386
24Jun–07Jul	0	0	0	0	77	1,817	21	210
08Jul–21Jul	0	0	0	0	11	56	11	56
22Jul–04Aug	4	11	0	0	0	0	0	0
05Aug–18Aug	0	0	0	0	0	0	0	0
Derby[a]	0	0	0	0	0	0	0	0
19Aug–01Sep	0	0	0	0	0	0	0	0
02Sep–15Sep	0	0	0	0	0	0	0	0
16Sep–29Sep	0	0	0	0	0	0	0	0
Total	253	50,489	9	78	346	10,548	101	824

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Appendix A5–Page 3 of 3.

Seasonal Period	Shellfish boat-days		Shellfish pots or rings		King crab boat-days		King crab pots or rings	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	125	2,838	268	21,082	103	2,054	231	18,352
13May–26May	76	1,270	166	4,018	68	1,214	158	3,962
27May–09Jun	225	2,304	437	10,879	200	1,677	317	4,056
10Jun–23Jun	304	4,845	798	66,954	266	3,867	536	22,788
24Jun–07Jul	634	15,925	1,227	78,022	594	14,104	1,092	62,065
08Jul–21Jul	1,188	20,639	2,052	64,996	1,117	19,383	1,861	64,734
22Jul–04Aug	960	19,480	1,587	68,782	928	18,992	1,464	62,966
05Aug–18Aug	567	12,324	1,095	33,124	501	5,646	994	33,076
Derby[a]	171	1,254	270	2,958	165	1,197	245	2,815
19Aug–01Sep	368	9,016	484	19,291	368	9,016	484	19,291
02Sep–15Sep	83	1,102	154	4,161	83	1,102	154	4,161
16Sep–29Sep	66	891	94	1,163	61	916	83	1,361
Total	4,767	91,888	8,632	375,430	4,454	79,168	7,619	299,627

Seasonal Period	King crab harvested		Tanner crab harvested		Dungeness crab harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	235	33,522
13May–26May	0	0	24	528	323	19,702
27May–09Jun	0	0	0	0	747	43,384
10Jun–23Jun	0	0	12	120	1,364	135,519
24Jun–07Jul	1,071	91,612	93	1,907	811	79,816
08Jul–21Jul	1,898	72,655	103	961	1,205	58,785
22Jul–04Aug	1,480	111,235	129	1,202	1,219	117,165
05Aug–18Aug	705	24,840	50	505	545	22,338
Derby[a]	140	1,564	14	37	253	9,365
19Aug–01Sep	161	5,716	81	3,906	121	7,079
02Sep–15Sep	0	0	0	0	353	39,089
16Sep–29Sep	0	0	0	0	94	3,886
Total	5,455	307,622	506	9,166	7,270	569,650

[a] Includes 237 large Chinook salmon, 2 small Chinook salmon, 4,824 coho salmon, and 8 chum salmon entered in the derby.

Appendix A6.–Estimated effort, harvest and catch for the Sitka marine boat sport fishery by seasonal period, 29 April–29 September 2002.

Seasonal period	Boat-hours		Salmon-hours		Bottomfish-hours		Angler-hours	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	1,868	174,552	3,521	589,645	743	101,434	4,284	827,075
13May–26May	4,606	355,643	7,639	1,110,764	4,865	1,627,332	12,518	3,387,339
Derby[a]	5,249	114,855	11,057	421,427	2,354	38,667	13,422	485,101
27May–09Jun	5,146	1,018,018	11,598	6,930,583	4,896	2,740,400	16,493	12,719,781
10Jun–23Jun	10,603	653,680	22,802	2,911,199	8,388	2,109,751	31,190	7,559,423
24Jun–07Jul	9,097	755,785	17,996	2,677,956	10,827	4,872,022	28,823	10,065,258
08Jul–21Jul	8,612	1,831,176	17,391	7,308,445	10,828	7,693,595	28,219	23,608,439
22Jul–04Aug	8,682	3,575,566	19,927	23,917,011	8,640	4,740,462	28,567	42,621,344
05Aug–18Aug	8,131	1,849,349	19,795	11,672,287	8,594	5,056,311	28,389	24,726,288
19Aug–01Sep	4,574	594,662	10,747	5,063,596	4,626	1,184,492	15,373	8,503,514
02Sep–15Sep	1,308	224,226	2,116	591,098	1,125	201,572	3,241	1,394,124
16Sep–29Sep	413	6,867	534	43,753	419	12,588	953	55,782
Total	68,289	11,154,379	145,123	63,237,764	66,305	30,378,626	211,472	135,953,468

Seasonal period	Boat-days		Chinook salmon ≥ 28" total catch		Chinook salmon ≥ 28" harvested		Chinook salmon < 28" total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	618	20,106	348	22,014	336	22,086	72	3,411
13May–26May	1,221	22,593	1,046	37,963	765	19,438	31	271
Derby[a]	1,132	2,667	2,213	46,112	1,824	20,377	181	5,675
27May–09Jun	1,684	110,092	5,009	2,875,449	2,885	663,010	204	3,551
10Jun–23Jun	3,015	59,700	8,021	995,113	5,764	405,188	440	6,764
24Jun–07Jul	2,716	94,080	6,671	1,448,596	4,226	397,717	194	2,943
08Jul–21Jul	2,538	161,763	3,274	359,768	2,830	297,788	214	4,436
22Jul–04Aug	2,549	293,988	3,652	819,804	2,803	474,928	282	11,489
05Aug–18Aug	2,296	155,003	3,258	542,485	2,622	331,157	453	23,255
19Aug–01Sep	1,232	38,755	762	82,891	646	43,344	279	7,100
02Sep–15Sep	376	15,076	118	3,137	90	1,401	9	78
16Sep–29Sep	144	821	57	2,248	43	1,244	21	391
Total	19,521	974,644	34,429	7,235,580	24,834	2,677,678	2,380	69,364

Seasonal period	Chinook salmon < 28" harvested		Coho salmon total catch		Coho salmon harvested		Pink salmon total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	0	0	18	60
Derby[a]	0	0	5	18	0	0	0	0
27May–09Jun	0	0	0	0	0	0	5	23
10Jun–23Jun	0	0	563	11,388	445	7,219	130	764
24Jun–07Jul	0	0	3,955	561,406	3,729	528,911	434	6,485
08Jul–21Jul	0	0	9,866	11,647,549	9,614	11,525,161	2,710	737,685
22Jul–04Aug	0	0	11,321	7,927,148	10,970	7,437,461	5,431	2,450,781
05Aug–18Aug	0	0	12,003	4,654,273	11,930	4,617,864	3,154	424,875
19Aug–01Sep	0	0	7,945	3,869,513	7,463	2,889,851	916	74,331
02Sep–15Sep	0	0	1,992	626,399	1,721	605,730	167	21,984
16Sep–29Sep	0	0	302	24,361	278	24,089	0	0
Total	0	0	47,952	29,322,055	46,150	27,636,286	12,965	3,716,988

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Appendix A6.–Page 2 of 3.

Seasonal period	Pink salmon harvested		Chum salmon total catch		Chum salmon harvested		Sockeye salmon total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0	0	0
13May–26May	0	0	0	0	0	0	0	0
Derby[a]	0	0	3	4	3	4	0	0
27May–09Jun	5	23	0	0	0	0	0	0
10Jun–23Jun	69	505	54	1,150	54	1,150	0	0
24Jun–07Jul	268	4,942	96	2,892	56	960	133	10,206
08Jul–21Jul	1,028	96,566	198	4,007	150	3,019	223	17,235
22Jul–04Aug	2,775	647,074	356	35,654	205	5,656	0	0
05Aug–18Aug	1,328	69,115	210	3,855	166	2,523	0	0
19Aug–01Sep	239	6,329	47	362	22	109	0	0
02Sep–15Sep	7	56	5	22	5	22	0	0
16Sep–29Sep	0	0	0	0	0	0	0	0
Total	5,719	824,610	969	47,946	661	13,443	356	27,441

Seasonal period	Sockeye salmon harvested		Pacific halibut total catch		Pacific halibut harvested		Rockfish total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	177	7,659	147	4,683	1,008	97,764
13May–26May	0	0	1,224	160,372	1,119	139,318	1,484	85,837
Derby[a]	0	0	1,106	38,598	819	18,453	1,299	12,416
27May–09Jun	0	0	1,862	327,305	1,581	279,985	1,974	301,133
10Jun–23Jun	0	0	5,305	904,227	3,992	466,123	3,977	319,948
24Jun–07Jul	133	10,206	8,409	2,752,962	6,484	1,450,344	3,694	212,884
08Jul–21Jul	223	17,235	7,530	4,079,633	6,063	2,610,532	3,979	762,540
22Jul–04Aug	0	0	6,183	2,242,722	5,124	1,559,645	3,312	644,501
05Aug–18Aug	0	0	6,635	3,750,492	5,544	2,328,884	3,923	571,628
19Aug–01Sep	0	0	3,045	397,452	2,739	342,399	1,998	162,665
02Sep–15Sep	0	0	563	69,387	516	53,153	594	40,310
16Sep–29Sep	0	0	193	14,006	132	5,340	255	14,532
Total	356	27,441	42,232	14,744,815	34,260	9,258,859	27,497	3,226,158

Seasonal period	Rockfish harvested		Lingcod total catch		Lingcod harvested		Quillback rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	132	3,984	42	816	0	0	0	0
13May–26May	905	44,816	572	40,600	298	13,674	0	0
Derby[a]	442	2,260	451	5,197	179	1,054	5	18
27May–09Jun	725	30,599	812	63,446	357	12,284	53	1,810
10Jun–23Jun	2,044	116,456	1,337	54,619	220	5,417	30	750
24Jun–07Jul	2,466	154,549	1,197	60,416	7	42	9	68
08Jul–21Jul	2,381	394,022	2,300	1,140,168	5	18	0	0
22Jul–04Aug	1,769	240,295	794	102,507	0	0	5	18
05Aug–18Aug	1,822	280,837	1,506	190,454	230	13,465	19	292
19Aug–01Sep	1,123	78,553	962	74,885	467	18,754	0	0
02Sep–15Sep	173	8,976	200	13,372	121	6,311	0	0
16Sep–29Sep	192	11,259	98	4,591	62	1,931	0	0
Total	14,174	1,366,606	10,271	1,751,071	1,946	72,950	121	2,956

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Appendix A6.–Page 3 of 3.

Seasonal period	Dusky rockfish harvested		Copper rockfish harvested		Black rockfish harvested		Other pelagic rockfish harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	9	72	9	72	9	72	18	117
13May–26May	0	0	18	60	276	8,769	116	1,538
Derby[a]	13	54	0	0	56	698	3	4
27May–09Jun	0	0	37	519	132	2,936	27	578
10Jun–23Jun	35	212	38	604	368	10,403	83	1,781
24Jun–07Jul	0	0	5	17	562	38,723	12	59
08Jul–21Jul	12	132	0	0	658	149,709	178	9,414
22Jul–04Aug	0	0	0	0	255	21,017	123	6,129
05Aug–18Aug	0	0	0	0	450	54,959	69	1,228
19Aug–01Sep	0	0	0	0	231	9,572	45	1,233
02Sep–15Sep	0	0	0	0	84	4,162	0	0
16Sep–29Sep	0	0	0	0	24	181	0	0
Total	69	470	107	1,272	3,105	301,201	674	22,081

Seasonal period	Yelloweye rockfish harvested		Silvergrey rockfish harvested		Other non-pelagic rockfish harvested		Unidentified rockfish total catch	
	Estimate	Variance	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	36	1,188	0	0	18	288	876	97,380
13May–26May	232	21,806	0	0	165	2,989	581	40,718
Derby[a]	167	802	11	44	5	18	987	16,590
27May–09Jun	308	16,216	0	0	0	0	1,382	247,049
10Jun–23Jun	818	25,650	42	750	126	4,662	2,312	170,601
24Jun–07Jul	1,153	60,352	42	1,095	0	0	1,881	111,195
08Jul–21Jul	928	95,014	13	74	0	0	2,155	202,149
22Jul–04Aug	707	62,495	5	18	0	0	2,217	293,686
05Aug–18Aug	618	31,595	0	0	13	138	2,698	336,522
19Aug–01Sep	521	28,686	0	0	0	0	1,166	59,372
02Sep–15Sep	89	1,258	0	0	0	0	378	23,454
16Sep–29Sep	36	259	0	0	0	0	183	10,249
Total	5,613	345,321	113	1,981	327	8,095	16,816	1,608,965

Seasonal period	Unidentified rockfish harvested		Dolly Varden total catch		Dolly Varden harvested	
	Estimate	Variance	Estimate	Variance	Estimate	Variance
29Apr–12May	0	0	0	0	0	0
13May–26May	7	96	0	0	0	0
Derby[a]	146	2,022	0	0	0	0
27May–09Jun	133	5,138	0	0	0	0
10Jun–23Jun	446	29,978	0	0	0	0
24Jun–07Jul	674	41,877	5	17	5	17
08Jul–21Jul	573	31,183	96	8,064	0	0
22Jul–04Aug	674	79,647	7	45	7	45
05Aug–18Aug	654	128,416	10	73	0	0
19Aug–01Sep	302	13,596	0	0	0	0
02Sep–15Sep	0	0	0	0	0	0
16Sep–29Sep	120	7,200	0	0	0	0
Total	3,729	339,153	118	8,199	12	62

[a] Includes 728 large Chinook salmon entered in the derby.

Appendix A7.–Recorded effort and harvest from the Petersburg marine boat catch sampling program by biweekly period, 6 May–7 July 2002.

			Chinook salmon					
Biweekly period[a]	**Salmon -hours**	**Bottomfish -hours**	≥28" harvested (terminal harvest area excluded)	≥28" sampled[b] (terminal harvest area excluded)	≥28" harvested (terminal harvest area only)	≥28" sampled[b] (terminal harvest area only)	<28" harvested (terminal harvest area only)	<28" sampled[b] (terminal harvest area only)
29 Apr–12 May[c]	145.5	9.0	4	4	0	0	0	0
13 May–26 May	342.0	24.0	30	29	0	0	0	0
Derby entered[d]			618	617	0	0	0	0
Derby other			17	17	0	0	0	0
27 May–09 Jun	782.0	384.0	33	33	49	49	2	2
10 Jun–23 Jun	645.5	913.5	13	13	141	141	11	11
24 Jun–07 Jul	464.5	864.5	7	7	133	131	13	12
Total	2,379.5	2,195.0	722	720	323	321	26	25

Biweekly period[a]	Coho salmon harvested	Coho salmon sampled[b]	Pink salmon harvested	Chum salmon harvested	Sockeye salmon harvested	Pacific halibut harvested	Lingcod harvested	Rockfish harvested
29 Apr–12 May[c]	0	0	0	0	0	1	0	0
13 May–26 May	0	0	0	0	0	2	0	0
27 May–09 Jun	0	0	0	0	0	56	0	2
10 Jun–23 Jun	0	0	0	0	0	156	0	10
24 Jun–07 Jul	9	9	0	0	0	248	0	11
Total	9	9	0	0	0	463	0	23

[a] Sampling was conducted 5 days per week by one sampler working 7-h shifts. The Wrangell Narrows/Blind Slough terminal harvest area for Chinook salmon was open to increased bag limits from 1 June through July 31.

[b] Fish were sampled for presence or absence of adipose fins, and heads were collected from fish with missing adipose fins.

[c] Sampling was only conducted during the second week of this biweekly period.

[d] Petersburg derby held 24–27 May; effort and harvest of species other than Chinook salmon were not recorded during this event.

Appendix A8.–Recorded effort and harvest from the Wrangell marine boat catch sampling program by biweekly period, 29 April–30 June 2002.

Biweekly period[a]	Salmon-hours	Bottomfish-hours	Chinook salmon ≥28" harvested	Chinook salmon ≥28" sampled[b]	Chinook salmon <28" sampled[b]	Coho salmon harvested	Coho salmon sampled[b]
29 Apr–12 May	656.0	0.0	24	21	0	0	0
13 May–26 May	2,170.5	25.0	93	86	0	0	0
27 May–09 Jun	2,216.0	39.0	134	114	0	0	0
10 Jun–23 Jun[c]	421.5	66.0	17	17	0	0	0
24 Jun–07 Jul[d]	85.0	52.3	8	6	0	0	0
Total	5,549.0	182.3	276	244	0	0	0

Biweekly period[a]	Pink salmon harvested	Chum salmon harvested	Sockeye salmon harvested	Lingcod harvested	Pacific halibut harvested	Rockfish harvested
29 Apr–12 May	0	0	0	0	0	0
13 May–26 May	0	0	0	0	5	0
27 May–09 Jun	0	0	0	0	3	6
10 Jun–23 Jun[c]	0	0	0	0	3	0
24 Jun–07 Jul[d]	0	0	0	0	8	0
Total	0	0	0	0	19	6

[a] Sampling was conducted 5 days per week by one sampler working 7-h shifts.

[b] Fish were examined for presence or absence of adipose fins, and heads were collected from fish with missing adipose fins.

[c] Six scheduled days were not worked during this biweek because of personnel problems.

[d] Only the first week of this biweek was sampled.

Appendix A9.–Recorded effort and harvest from the Craig/Klawock marine boat catch sampling program by biweekly period, 6 May–15 September 2002.

Biweekly period[a]	Salmon-hours	Bottomfish-hours	Chinook salmon harvested	Chinook salmon sampled[b]	Coho salmon harvested	Coho salmon sampled[b]	Chum salmon harvested
29Apr–12May[d]	153.0	24.3	20	19	0	0	0
13May–20May	299.3	210.0	22	20	0	0	0
27May–09Jun	932.0	428.5	76	64	8	7	0
10Jun–23Jun	1,998.5	735.0	364	283	157	121	0
24Jun–07Jul	1,496.5	654.5	215	181	154	141	2
08Jul–21Jul	2,543.0	1,240.5	169	125	507	345	0
22Jul–04Aug	2,193.5	659.0	273	252	1,085	1,000	21
05Aug–18Aug	2,365.0	805.0	67	59	1,158	1,008	5
19Aug–01Sep	524.5	269.0	0	0	441	391	1
09Sep–15Sep	126.5	101.8	2	2	22	22	0
Total	12,631.8	5,127.6	1,208	1,005	3,532	3,035	29

Biweekly period[a]	Pink salmon harvested	Pacific halibut harvested	Lingcod harvested	Rockfish harvested	Additional CWT sampling[c] Chinook salmon	Additional CWT sampling[c] Coho salmon
29Apr–12May[d]	0	4	0	12	0	0
13May–20May	0	27	2	70	6	0
27May–09Jun	0	216	19	130	57	0
10Jun–23Jun	10	567	20	247	97	48
24Jun–07Jul	14	487	0	203	179	87
08Jul–21Jul	20	520	4	223	327	723
22Jul–04Aug	118	641	0	272	338	1,194
05Aug–18Aug	186	357	10	81	95	848
19Aug–01Sep	6	128	14	115	16	632
09Sep–15Sep	0	23	8	41	0	0
Total	354	2,970	77	1,394	1,115	3,532

[a] Sampling was conducted at the Craig harbors from 12 p.m. through 7 p.m. each Monday through Wednesday, from 3 p.m. through 8 p.m. on Thursdays, and from 11 a.m. through 8 p.m. each Friday through Sunday. Sampling was conducted at the Klawock sites from 12 p.m. through 7 p.m. Saturday and Sunday. Additional harvest included 3 sockeye salmon.

[b] Fish were sampled for presence or absence of adipose fin, and heads were collected from fish with missing adipose fins.

[c] Sampling was conducted at additional charter sites as time permitted to increase recoveries of coded wire tags.

[d] Sampling in Craig/Klawock was conducted only during the second week of this biweek period.

Appendix A10.–Recorded effort and harvest from the Gustavus marine boat catch sampling program by biweekly period, 3 June–15 September 2002.

Biweekly period[a]	Salmon-hours	Bottomfish-hours	Chinook salmon harvested	Chinook salmon sampled[b]	Coho salmon harvested	Coho salmon sampled[b]	Chum salmon harvested
27May–09Jun[c]	286.0	322.0	56	42	0	0	0
10Jun–23Jun	359.0	1,037.0	64	43	21	20	18
24Jun–07Jul	196.2	1,141.0	43	13	27	22	8
08Jul–21Jul	661.3	1,458.0	43	39	227	214	9
22Jul–04Aug	900.5	1,621.0	20	19	390	366	3
05Aug–18Aug	1,721.5	1,844.3	12	9	1,483	1,391	7
19Aug–01Sep	892.0	983.0	7	6	727	668	1
09Sep–15Sep	323.5	395.0	1	1	204	203	0
Total	5,340.0	8,801.3	246	172	3,079	2,884	46

					Bartlett Cove additional sampling		
Biweekly period[a]	Pink salmon harvested	Pacific halibut harvested	Lingcod harvested	Rockfish harvested	Chinook salmon sampled[b]	Coho salmon sampled[b]	Pacific halibut harvested
27May–09Jun[c]	0	66	0	1			
10Jun–23Jun	11	321	0	10			
24Jun–07Jul	19	358	0	13	0	0	6
08Jul–21Jul	367	487	0	10			
22Jul–04Aug	141	428	0	13			
05Aug–18Aug	177	586	4	7	0	7	11
19Aug–01Sep	26	369	2	26	0	0	11
09Sep–15Sep	4	137	0	0			
Total	745	2,752	6	80	0	7	28

	Elfin Cove additional sampling						
Biweekly period[a]	Salmon-hours	Bottomfish-hours	Chinook salmon harvested	Chinook salmon sampled[b]	Coho salmon harvested	Coho salmon sampled[b]	Pacific halibut harvested
27May–09Jun							
10Jun–23Jun							
24Jun–07Jul[d]	99.0	561.0	3	3	16	15	15
08Jul–21Jul	235.0	205.5	4	4	170	139	37
22Jul–04Aug	249.0	396.3	27	22	101	71	89
05Aug–18Aug	225.0	213.0	25	15	108	35	50
19Aug–01Sep	223.5	184.5	4	2	140	64	47
09Sep–15Sep							
Total	1,031.5	1,560.3	63	46	535	324	238

[a] Sampling was conducted at the Gustavus harbor 5 days per week during 7 hour shifts with random start times. Sampling at Bartlett Cove and Elfin Cove was intermittent.

[b] Fish were sampled for presence or absence of adipose fin, and heads were collected from fish with missing adipose fins.

[c] Sampling in Gustavus was conducted only during the second week of this biweek period.

[d] Sampling in Elfin Cove was conducted only during the second week of this biweek period

Appendix A11.–Numbers of Chinook salmon examined for coded wire tags in Southeast Alaska marine boat sport fisheries in 2002.

Sport fishery	Seasonal period	Chinook salmon ≥ 28″ Estimated harvest	Number Sampled	Percent	Chinook salmon < 28″ Estimated harvest	Number Sampled	Percent
Creel surveys							
Ketchikan	4/29–6/23	2,364	359	15	10	1	10
	Derby entered[a]	1,054	954	91	0	0	0
	Derby not entered	356	87	24	7	2	29
	6/24–8/04	3,151	726	23	103	10	10
	8/05–9/29	236	36	13	15	4	27
	Total	7,161	2,162	30	135	17	13
Juneau	4/29–6/23	4,227	706	17	16	7	44
	6/24–8/04	1,462	223	15	83	10	12
	8/05–9/29	350	73	21	0	0	0
	Derby entered[b]	237	237	100	2	2	100
	Derby take-home	53	17	32	0	0	0
	Total	6,329	1,256	20	101	19	19
Sitka	4/29–6/23	9,750	2,688	28	0	0	0
	Derby entered[c]	728	728	100	0	0	0
	Derby take-home	1,096	344	31	0	0	0
	6/24–8/04	9,859	2,618	27	0	0	0
	8/05–9/29	3,401	1,039	31	0	0	0
	Total	24,834	7,417	30	0	0	0
Creel survey subtotal		38,324	10,835	28	236	36	15
Catch sampling programs							
Petersburg	5/06–7/07[d]		126			0	
	Derby entered[e]		617			0	
	Derby take-home		17			0	
	Total		760			0	
Wrangell	4/29–6/30		244			0	
Craig/Klawock	5/06–9/15		2,120			0	
Gustavus	6/03–9/15		172			0	
Elfin Cove	7/01–9/01		46			0	
Catch sampling subtotal			3,342			0	
Grand total sampled			14,177			36	

[a] Derby held 25–27 May, 1–2 June, and 8–9 June.

[b] Derby held 23–26 August.

[c] Derby held 25–27 May and 1–2 June.

[d] Does not include Chinook salmon (246 ≥ 28" and 18 < 28") sampled from the Wrangell Narrows terminal harvest area.

[e] Derby held 24–27 May.

Appendix A12.–Estimates of hatchery-produced and wild tagged Chinook salmon contributed to the Ketchikan marine boat sport fishery, 29 April– 29 September 2002.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS																		
British Columbia	AFSP	Kincolith River	28-01-01							1	3	8	1	4	13	2	7	22
			28-01-02										1	6	31	1	6	31
	CDFO	Conuma River	18-31-63	1	124	15,272										1	124	15,272
		Kincolith River	18-31-17				1	2	2							1	2	2
		Kitimat River	18-19-14				1	19	328							1	19	328
		Nitinat River	18-37-47	1	23	502										1	23	502
		Quinsam River	18-37-45				1	15	221							1	15	221
		Sooke River	18-32-32	1	6	27										1	6	27
			18-32-40							1	19	349				1	19	349
		Tenderfoot Creek	18-37-57				1	52	2,669							1	52	2,669
		Thornton Creek	18-39-18	1	47	2,134										1	47	2,134
		B.C. total		4	200	18,929	4	88	3,220	2	22	357	2	10	44	12	320	22,550
Oregon	ODFW	Bonneville Hatchery	09-29-25										1	85	7,085	1	85	7,085
		Elk River	09-30-52										1	7	39	1	7	39
		Gnat Creek	09-31-23										1	4	14	1	4	14
		McKenzie	09-28-62	1	6	32										1	6	32
		Oregon Total		1	6	32							3	96	7,138	4	102	7,170
Washington	NEZP	Lyons Ferry	63-10-13							1	4	11				1	4	11
	WDFW	Chelan Pud	63-10-32				1	1	0	1	4	11				2	5	11
		Dryden Pond	63-11-51							1	6	28				1	6	28
		Klickitat	05-45-21	1	6	28										1	6	28
			63-10-45							1	4	14				1	4	14
		Lyons Ferry	63-08-60				1	1	0							1	1	0
		Marblemount	63-16-64										1	10	89	1	10	89
		Similkameen	63-11-48							1	4	12				1	4	12
		Turtle Rock	63-01-77							1	6	31				1	6	31
		Wells Hatchery	63-06-11				1	1	0							1	1	0
			63-10-61							1	6	30				1	6	30
		WA Total		1	6	28	3	3	1	7	34	147	1	10	89	12	53	265
Alaska	ADFG	Crystal Lake	04-01-48				1	12	144							1	12	144
			04-46-62				1	15	208							1	15	208
		Crystal Lake/ Neets Bay	04-01-50	2	99	4,998	10	98	866	1	33	1,081				13	230	6,945
		Neets Bay	04-04-20				2	53	1,868	2	91	4,114				4	144	5,982
			04-50-03				4	53	647							4	53	647
	KTHC	Deer Mountain	04-04-23				2	12	61							2	12	61
	MIC	Tamgas Creek	47-01-03	2	229	27,153	6	137	2,972	3	272	25,343				11	638	55,468
			47-01-09				3	161	12,852	1	135	18,191				4	296	31,043
			47-17-35	1	446	198,351				1	71	5,020				2	517	203,371

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Appendix A12.–Page 2 of 2.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
	SSRA	Crystal Lake/Neets Bay	04-01-79							1	29	849				1	29	849
		Neets Bay	04-02-41				1	11	113	1	56	3,031				2	67	3,144
			04-01-03-1313				1	4	11									
			04-01-03-1506										1	46	2,112			
		Whitman Lake	04-02-33				2	19	169	1	33	1,057				3	52	1,226
			04-02-34	1	49	2,337	1	10	85	1	48	2,291				3	107	4,712
			04-02-35	2	96	4,716	5	48	407							7	144	5,123
			04-02-36	1	48	2,263	4	38	327							5	86	2,590
			04-02-37	1	47	2,209	4	93	3,101	3	111	4,227				8	251	9,537
			04-02-38	1	48	2,255	3	29	245	2	80	3,231				6	157	5,731
			04-02-39	1	96	9,047				1	65	4,117				2	161	13,164
			04-04-26				2	21	201	3	110	3,984				5	131	4,185
			04-04-27				1	11	100	3	124	5,267				4	135	5,367
			04-04-28	2	119	7,308				1	40	1,584				3	159	8,893
			04-04-29	1	59	3,479	3	55	1,220	2	80	3,251				6	194	7,949
			04-04-30				2	29	404	2	100	5,057				4	129	5,461
			04-04-31	1	126	15,823	2	22	211	4	164	6,998	1	58	3,293	8	370	26,326
			04-04-32	2	109	6,068	2	22	212	1	37	1,314				5	168	7,595
			04-49-58							1	27	695				1	27	695
			04-49-62	1	53	2,736	1	41	1,681							2	94	4,417
			04-50-01				2	31	437							2	31	437
			04-50-02	2	137	9,736	1	54	2,862							3	191	12,598
		Alaska total		21	1,761	356,382	66	1,079	37,823	35	1,706	135,380	2	104	5,838	124	4,650	535,423
		All regions		27	1,973	398,528	73	1,170	43,762	44	1,762	138,496	8	220	13,307	152	5,125	584,093
								WILD STOCKS[f]										
Alaska	ADFG	Unuk River	04-01-39				1	13	159							1	13	159
			04-01-40				3	39	478	1	55	3,083				4	94	3,561
			04-01-42	1	91	8,252										1	91	8,252
			04-01-44				1	13	159	1	55	3,083				2	68	3,242
			04-43-39				1	10	98							1	10	98
			04-46-46				3	31	293							3	31	293
			04-47-13				3	31	293							3	31	293
			04-47-14				1	10	98							1	10	98
			04-47-15	1	52	2.681										1	52	2,681
		Wild stocks total		2	143	11,363	13	148	1,579	2	110	6,167				17	401	19,109

[a] Derby held on 25–27 May, 1–2 June, and 8–9 June 2002.

[b] AFSP = Aboriginal Fishery Strategy Program; CDFO = Canada Department of Fisheries and Oceans; ODFW = Oregon Department of Fisheries and Wildlife; NEZP = Nez Perce Tribe; WDFW = Washington Department of Fisheries and Wildlife; ADFG = Alaska Department of Fish and Game; KTHC = Ketchikan Tribal Hatchery Corporation; MIC = Metlakatla Indian Community; SSRA = Southern Southeast Regional Aquaculture Association.

[c] Rec = Number of fish recovered of noted tag code.

[d] Con = Estimated harvest (contribution) of the release of the noted tag code.

[e] Variance = Variance of the estimated harvest of the release of the noted tag code.

[f] Wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds.

Appendix A13.–Estimates of hatchery-produced and wild tagged Chinook salmon contributed to the Juneau marine boat sport fishery, 29 April-29 September 2002.

		Hatchery/		Non-derby 4/29–6/23			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Derby[a]			Total		
Region	Agency[b]	release site	Tag code	Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS																		
British Columbia	AFSP	Kincolith River	28-01-02				1	5	17							1	5	17
	CDFO	Quinsam River	18-32-52				1	76	5,693							1	76	5,693
		B.C. total					2	81	5,788							2	81	5,788
Washington	QDNR	Quinault Lake	21-01-28				1	23	490							1	23	490
	WDFW	Fallert Creek	63-01-14				1	5	18							1	5	18
		Klickitat	05-45-35	1	6	28										1	6	28
		Wells Hatchery	63-10-61				1	5	19							1	5	19
		Washington total		1	6	28	3	33	532							4	39	560
Alaska	ADFG	Crystal Lake/Neets Bay	04-01-50				1	40	1,545							1	40	1,545
			04-04-20										1	10	81	1	10	81
	DIPC	Macaulay	04-01-56				1	76	5,673							1	76	5,673
			04-01-60										1	22	464	1	22	464
			04-02-46										1	10	99	1	10	99
			50-04-37	2	101	5,155	2	120	7,530							4	221	12,685
			50-04-38	4	212	11,850										4	212	11,850
			50-04-39	3	98	3,201										3	98	3,201
			50-04-40	2	78	2,994										2	78	2,994
			50-04-41	6	218	8,167	3	131	6,248							9	349	14,415
			50-04-53	6	349	21,522	1	64	4,030							7	413	25,552
			50-04-54	4	207	11,601	3	189	13,102							7	396	24,702
			50-04-55	3	161	9,022	2	130	8,858							5	291	17,880
			50-04-56	6	333	19,494	5	322	25,189	1	72	5,177				12	727	49,860
			50-04-57										2	15	93	2	15	93
			50-04-58	3	124	5,063	2	99	5,112							5	223	10,175
			50-04-59	4	164	6,886										4	164	6,886
	NMFS	Little Port Walter	03-01-15				1	5	19							1	5	19
			03-01-52										1	1	0	1	1	0
			03-01-54										1	1	0	1	1	0
			03-62-41				1	7	42							1	7	42
			03-62-42										1	1	0	1	1	0
			03-62-44				1	5	18							1	5	18
	NSRA	Hidden Falls	04-46-63							3	326	43,307	3	42	551	6	368	43,857
			04-48-18	1	71	4,946										1	71	4,946
			04-48-52										1	14	171	1	14	171
		Medvejie	04-48-21										1	12	136	1	12	136
	SSRA	Whitman Lake	04-04-26										1	9	78	1	9	78
		Alaska total		44	2,116	159,736	23	1,188	129,892	4	398	53,958	14	137	1,693	85	3,839	345,279
		All regions		45	2,122	159,976	28	1,302	140,076	4	398	53,958	14	137	1,693	91	3,959	355,703

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Appendix A13.–Page 2 of 2.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Derby[a]			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
WILD STOCKS[f]																		
Alaska	ADFG	Taku River	04-01-41	2	1,607	1,449,331										2	1,607	1,449,331
			04-46-36	1	492	266,296										1	492	266,296
			04-46-37	1	492	266,296										1	492	266,296
			04-46-44	3	1,475	798,888										3	1,475	798,888
		Wild stocks total		7	4,066	3,088,513										7	4,066	3,088,513

[a] Derby held on 23–26 August 2002.

[b] AFSP = Aboriginal Fishery Strategy Program, CDFO = Canada Department of Fisheries and Oceans, QDNR = Quinault Department of Natural Resources, WDFW = Washington Department of Fisheries and Wildlife, ADFG = Alaska Department of Fish and Game, DIPC = Douglas Island Pink and Chum, NMFS = National Marine Fisheries Service, NSRA = Northern Southeast Regional Aquaculture Association, SSRA = Southern Southeast Regional Aquaculture Association.

[c] Rec = Number of fish recovered of noted tag code.

[d] Con = Estimated harvest (contribution) of the release of the noted tag code.

[e] Variance = Variance of the estimated harvest of the release of the noted tag code.

[f] Wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds.

Appendix A14.–Estimates of hatchery-produced and wild tagged Chinook salmon contributed to the Sitka marine boat sport fishery, 29 April–29 September 2002.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS																		
British Columbia	CDFO	Big Qualicum River	18-38-18							1	48	2,248				1	48	2,248
		Clayoquot	18-43-05										1	24	549	1	24	549
			18-43-07										1	24	549	1	24	549
		Conuma River	18-31-62	2	487	156,306	1	31	909							3	518	157,215
			18-31-63				1	71	4,929	1	70	4,839				2	141	9,767
			18-38-46	1	34	1,098										1	34	1,098
		Fort Babine	18-32-38							1	6	26				1	6	26
		Inch Creek	18-41-16	1	3	9										1	3	9
		Kincolith River	18-32-14	1	12	135										1	12	135
		Kitimat River	18-45-37							1	65	4,106				1	65	4,106
			18-45-38										1	15	208	1	15	208
		Masset	18-38-13				1	3	4							1	3	4
		Nitinat River	18-27-24							1	268	71,486				1	268	71,486
			18-27-25	1	182	33,010				1	171	29,208				2	353	62,218
			18-37-47	2	28	356							1	14	189	3	42	544
			18-38-37							1	103	10,511				1	103	10,511
		Puntledge	18-38-27	1	79	6,135										1	79	6,135
		Quinsam River	18-37-43				1	39	1,513							1	39	1,513
		Robertson Cr.	18-03-62										1	73	5,231	1	73	5,231
			18-10-63							1	89	7,797				1	89	7,797
			18-34-33							1	186	34,306	1	204	41,572	2	390	75,878
			18-38-31	1	84	7,048				1	79	6,236	1	87	7,561	3	250	20,845
		Shuswap River	18-31-50	1	13	163										1	13	163
			18-42-08	2	30	435				1	19	350				3	49	785
			18-42-09	2	44	1,024	1	14	193							3	58	1,217
		Snootli Creek	18-32-36	1	3	8							1	4	9	2	7	18
			18-38-05							1	28	780				1	28	780
		Sooke River	18-32-31	1	14	197										1	14	197
			18-32-40							1	22	444	1	18	293	2	40	737
			18-32-41	1	32	971				1	38	1,373				2	70	2,344
		Terrace	18-27-54				1	3	7							1	3	7
			18-28-06	1	4	10	2	2	0							3	6	10
			18-28-08							1	3	8				1	3	8
			18-42-13							1	4	15				1	4	15
		Tofino	18-31-14							1	7	44				1	7	44
			18-39-10							1	9	73				1	9	73
		B.C. total		19	1,049	210,694	8	163	7,844	18	1,215	195,612	9	463	63,768	54	2,890	477,918
Oregon	ODFW	Bonneville	09-21-22										1	348	120,907	1	348	120,907
			09-24-41							1	3	8				1	3	8
			09-27-51							1	5	16	1	4	10	2	9	27
			09-29-25										1	31	919	1	31	919
		Butte Falls	09-19-14							2	17	136				2	17	136
		Clackamas	09-26-31				1	1	0							1	1	0
		Elk River	09-28-10							4	27	161	2	32	701	6	59	862

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Appendix A14.–Page 2 of 4.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
Oregon	ODFW	Gardiner Creek	09-19-08							1	3	7				1	3	7
		Marion Forks	07-12-62										1	98	9,484	1	98	9,484
		Mckenzie	09-29-08							1	37	1,344				1	37	1,344
		Morgan Creek	09-19-15										1	12	121	1	12	121
		Nehalem	09-18-62							1	3	7				1	3	7
			09-19-12							1	3	8				1	3	8
		Salmon River	09-19-09	1	12	139										1	12	139
			09-24-47	1	4	11				1	4	10				2	8	21
			09-28-17							2	8	24	2	6	14	4	14	38
			09-30-53										1	4	9	1	4	9
		South Sanitam	09-28-14							1	46	2,111				1	46	2,111
		Tuffy Creek	09-19-03							1	13	168				1	13	168
		Umatilla	09-26-63							1	13	164				1	13	164
			09-27-04	1	22	455										1	22	455
			09-30-03							1	12	128				1	12	128
		Willamette	09-28-15										1	4	15	1	4	15
		Oregon total		3	38	616	1	1	0	19	194	4,606	11	539	138,404	34	772	143,626
Washington	FWS	Ltl White Salmon	05-01-01-1003	1	37	1,365										1	37	1,365
		Makah on Sooes River	05-15-62										2	87	3,914	2	87	3,914
		Prosser Hatchery	05-01-02-1002	1	55	3,000				3	89	2,687				4	144	5,686
		Quinault	05-50-18				1	4	14	1	5	23	1	3	6	3	12	44
		Cook Creek	05-50-38							1	12	142				1	4	142
	MAKA	Hoko Falls	21-29-59	1	4	13										1	4	13
			21-30-04	1	4	9										1	4	9
	QDNR	Quinault Lake	21-01-28	2	22	233	1	3	8							3	25	241
			21-01-29				1	18	307							1	18	307
			21-01-44				2	11	50	4	25	142				6	36	192
		Salmon River	21-30-01	1	6	33				1	6	29	3	17	90	5	29	153
		Fish Culture	21-30-03							5	32	187	1	4	12	6	36	199
	WDFW	Chelan Pud	63-10-32							1	4	13	6	18	45	7	22	57
		Dryden Pond	63-06-12	4	14	39	2	4	7	5	20	62				11	38	107
			63-11-51							3	11	30	4	12	29	7	23	59
		Forks Creek	63-05-12							1	4	16				1	4	16
			63-06-56							1	3	7				1	3	7
		Kalama Falls	63-10-39							1	5	16				1	5	16
		Klickitat Hatchery	05-01-02-0415	1	3	8										1	3	8
			05-45-21							2	7	21	1	8	53	3	15	73
			05-45-35							1	4	15				1	4	15
			05-50-11										1	4	9	1	4	9
			63-03-10	1	40	1,535										1	40	1,535
			63-10-27							1	4	13				1	4	13
			63-10-45							2	7	21	1	2	3	3	9	25
			09-26-35	1	3	9										1	3	9

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Appendix A14.–Page 3 of 4.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
Washington	WDFW	Marblemount	21-01-51										1	8	53	1	8	53
		North Toutle	63-10-38							1	4	15				1	4	15
		Priest Rapids	63-10-30							2	190	18,384	1	89	7,896	3	279	26,280
			63-13-33										1	103	10,589	1	103	10,589
		Ringold Springs	63-10-11	2	113	6,814										2	113	6,814
			63-10-47	1	3	9				2	7	21				3	10	30
		Similkameen	63-06-10	14	52	195	8	15	27	4	16	59	3	11	37	29	94	317
			63-11-48							1	3	8	7	23	71	8	26	79
		Turtle Rock	63-06-06	4	14	38				2	9	33				6	23	71
		Washougal	63-05-02							2	7	17				2	7	17
		Wells Hatchery	63-06-11	9	33	138	7	11	17	1	5	17	1	4	11	18	53	183
			63-10-61							7	29	109	10	36	149	17	65	258
		Washington total		44	403	16,211	22	66	476	55	508	25,071	44	429	28,721	165	1,406	70,479
Alaska	ADFG	Crystal Lake/ Neets Bay	04-01-50	1	30	873	1	9	71							2	39	944
			04-50-03	1	40	1,552	1	12	125							2	52	1,677
	DIPC	Macaulay	50-04-56	1	32	1,019										1	32	1,019
			50-04-59	1	25	579										1	25	579
	KTHC	Deer Mountain	04-49-42				1	5	17							1	5	17
	MIC	Tamgas Creek	47-01-03				1	20	386							1	20	386
	NMFS	Little Port Walter	03-01-48				1	1	0							1	1	0
			03-62-12				2	2	0							2	2	0
			03-62-15	1	4	9	1	1	0							2	5	9
			03-62-30							1	5	17				1	5	17
			03-62-35							1	5	16				1	5	16
			03-62-36	1	4	10										1	4	10
			03-62-39	1	4	10										1	4	10
			03-62-43										1	4	10	1	4	10
			03-63-36				1	3	8							1	3	8
	NSRA	Hidden Falls	04-48-17				1	12	136							1	12	136
		Medvejie	04-48-16	2	77	2,917										2	77	2,917
			04-48-20	1	44	1,913										1	44	1,913
			04-48-21	1	42	1,732	1	12	136							2	54	1,868
			04-48-29	6	335	22,209	8	209	7,541							14	544	29,749
			04-48-54	1	56	3,110	3	86	3,223							4	142	6,333
			04-48-56				1	7	38							1	7	38
			04-48-59	2	98	5,108	4	41	371							6	139	5,479
			04-49-06							1	37	1,319				1	37	1,319
			04-49-21	2	53	1,390	2	32	616							4	85	2,006
			04-49-22	3	91	2,807										3	91	2,807
			04-49-24	4	107	2,828	5	75	1,455							9	182	4,283
			04-49-25	5	131	3,493	5	57	808							10	188	4,301
			04-49-26	2	48	1,099	6	59	705	3	88	2,571				11	195	4,375
	SJ	Sheldon Jackson	04-02-47	2	7	20										2	7	20
	SSRA	Neets Bay	04-01-03-1507				1	8	54				1	27	706	2	35	760

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Appendix A14.–Page 4 of 4.

Region	Agency[b]	Hatchery/ release site	Tag code	Non-derby 4/29–6/23			Derby[a]			Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
Alaska	SSRA	Neets Bay	04-02-40				1	26	660							1	26	660
		Whitman Lake	04-02-35				1	27	720							1	27	720
			04-02-36	1	55	2,954										1	55	2,954
			04-02-38							1	34	1,133				1	34	1,133
			04-04-26										1	33	1,050	1	33	1,050
			04-04-27										1	70	4,828	1	70	4,828
			04-04-28							1	42	1,757				1	42	1,757
			04-04-32							1	31	912				1	31	912
			04-50-01				1	14	170							1	14	170
		Alaska total		39	1,283	76,684	49	718	19,800	9	242	8,133	4	134	6,703	101	2,377	111,320
		All regions		105	2,773	356,863	80	948	32,070	101	2,159	271,027	68	1,565	304,894	354	7,445	964,854
WILD STOCKS[f]																		
Alaska	ADFG	Unuk River	04-02-56				1	17	258							1	17	258
			04-47-14				1	9	80							1	9	80
		Alaska total					2	26	338							2	26	338
Oregon	ODFW	Dexter Ponds	09-28-12										1	52	2,661	1	52	2,661
		Oregon total											1	52	2,661	1	52	2,661
Washington	WDFW	Columbia River	63-06-03	1	3	8										1	3	8
			63-06-35										1	4	9	1	4	9
		Lewis River	63-05-06	1	3	8										1	3	8
			63-05-07				1	3	7							1	3	7
		Washington total		2	6	17	1	3	7				1	4	9	4	13	33
		Wild stocks total		2	6	17	3	29	345				2	56	2,670	7	91	3,032

[a] Derby held on 25–27 May and 1–2 June 2002.

[b] CDFO = Canada Department of Fisheries and Oceans; ODFW = Oregon Department of Fish and Wildlife; FWS = U.S. Fish and Wildlife Service; MAKA = Makah Tribe; QDNR = Quinault Department of Natural Resources; WDFW = Washington Department of Fisheries and Wildlife; ADFG = Alaska Department of Fish and Game; DIPC = Douglas Island Pink and Chum; KTHC = Ketchikan Tribal Hatchery Corporation; MIC = Metlakatla Indian Community; NMFS= National Marine Fisheries Service; NSRA = Northern Southeast Regional Aquaculture Association; SJ = Sheldon Jackson College; SSRA = Southern Southeast Regional Aquaculture Association.

[c] Rec = Number of fish recovered of noted tag code.

[d] Con = Estimated harvest (contribution) of the release of the noted tag code.

[e] Variance = Variance of the estimated harvest of the release of the noted tag code.

[f] Alaskan wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds. Non-Alaskan wild stock recoveries were only expanded by using the sampling fraction because tagging fractions were unavailable.

Appendix A15.–Estimates (from sampled fish only) of hatchery-produced Chinook salmon contributed to 742 Chinook salmon examined during the Petersburg marine boat sport fishery from 6 May to 7 July 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
British Columbia	CDFO	Kincolith River	18-31-16	1	2	1	0%
		Shuswap River	18-42-08	1	4	15	1%
		B.C. total		2	6	16	1%
Alaska	ADFG	Crystal Lake	04-01-48	1	11	111	1%
			04-46-62	20	264	3,228	36%
		Crystal Lake/Earl West Cove	04-01-49	1	10	84	1%
	SSRA	Neets Bay	04-02-41	1	10	88	1%
		Alaska total		23	295	3,511	40%
		TOTAL ALL REGIONS		25	301	3,527	41%

[a] CDFO = Canada Department of Fisheries and Oceans; ADFG = Alaska Department of Fish and Game; SSRA = Southern Southeast Regional Aquaculture Association.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

Appendix A16.–Estimates (from sampled fish only) of hatchery-produced Chinook salmon contributed to 2,120 Chinook salmon examined during the Craig/Klawock marine boat sport fishery from 6 May to 15 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
British Columbia	CDFO	Big Qualicum River	18-31-45	1	28	783	1%
		Conuma River	18-31-62	1	31	909	1%
			18-31-63	1	22	455	1%
		Kitimat River	18-39-13	1	8	59	0%
		Little Qualicum	18-44-49	1	51	2,552	2%
		Nitinat River	18-37-47	2	8	24	0%
		Quinsam River	18-30-31	1	8	50	0%
		Robertson Creek	18-38-31	2	50	1,178	2%
		Shuswap River	18-42-08	3	13	46	1%
		Terrace	18-27-50	1	1	0	0%
			18-27-55	1	1	0	0%
			18-28-06	1	1	0	0%
			18-28-07	1	1	0	0%
			18-28-08	2	2	0	0%
			18-28-09	1	1	0	0%
			18-33-07	1	1	0	0%
		Tofino	18-31-14	1	2	1	0%
		B.C. total		22	229	6,057	11%
Oregon	ODFW	Elk River	09-24-49	1	2	1	0%
			09-28-10	1	2	1	0%
		Nehalem	09-18-62	1	1	0	0%
		Salmon River	09-24-47	1	1	0	0%
			09-28-17	3	3	0	0%
		Oregon total		7	9	2	0%
Washington	FWS	Prosser	05-01-02-1002	1	9	64	0%
		Quinaualt	05-50-18	1	1	0	0%
	QDNR	Quniault Lake	21-01-44	2	3	2	0%
		Salmon River	21-30-01	3	6	5	0%
			21-30-03	1	2	1	0%
	WDFW	Carlton Pond	63-10-33	3	3	0	0%
		Chelan	63-10-32	6	6	0	0%
		Dryden Pond	63-06-12	2	2	0	0%
		Kendall Creek	63-10-28	1	1	0	0%
		Klickitat	05-45-35	1	1	0	0%
		Lyons Ferry	63-10-26	2	2	0	0%
		Marblemount	21-01-51	2	2	0	0%
		McAlister	63-05-06	1	1	0	0%
		Ringold Springs	63-10-46	1	1	0	0%
			63-10-47	1	1	0	0%
		Similkameen	63-06-10	1	1	0	0%
			63-11-48	2	2	0	0%
		Turtle Rock	63-06-06	1	1	0	0%
		Wells	63-06-11	3	3	0	0%
			63-10-61	3	3	0	0%
		Washington total		38	51	72	2%
		Non-Alaska total		67	289	6,131	14%

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Appendix A16.–Page 2 of 2.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
Alaska	ADFG	Crystal Lake	04-46-62	1	13	161	1%
		Crystal	04-01-50	1	9	67	0%
	SSRA	Neets Bay	04-01-03-1506	1	8	51	0%
			04-46-26	1	14	173	1%
		Alaska total		4	44	452	2%
		Total all regions		71	333	6,583	16%
		WILD STOCKS[e]					
Washington	WDFW	Columbia River	63-06-35	1	1	0	0%
Alaska	ADFG	Unuk River	04-46-46	1	9	75	0%
			04-47-13	1	9	76	0%
		Wild stocks total		3	19	151	1%

[a] CDFO = Canada Department of Fisheries and Oceans; ODFW = Oregon Department of Fish and Wildlife; FWS = U.S. Fish and Wildlife Service; QDNR = Quinault Department of Natural Resources; WDFW = Washington Department of Fisheries and Wildlife; ADGF = Alaska Department of Fish and Game; SSRA = Southern Southeast Regional Aquaculture Association.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

[e] Alaskan wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds.

Appendix A17.–Estimates **(from sampled fish only)** of hatchery-produced Chinook salmon contributed to 172 Chinook salmon examined during the Gustavus marine boat sport fishery from 3 June to 15 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
Oregon	ODFW	Elk River	09-28-10	1	2	2	1%
Washington	WDFW	Ringold Springs	63-05-21	1	16	251	10%
		Non-Alaskan total		2	18	253	10%
	DIPC	Crystal Lake/ Macaulay	50-04-56	1	10	98	6%
	NMFS	Little Port	03-62-33	1	1	0	1%
	NSRA	Hidden Falls	04-46-63	2	31	457	18%
		Medvejie	04-48-59	1	11	109	6%
		Alaska total		6	66	825	38%
		TOTAL ALL REGIONS		8	84	1,078	49%

[a] ODFW = Oregon Department of Fish and Wildlife; WDFW = Washington Department of Fisheries and Wildlife; ADFG = Alaska Department of Fish and Game; DIPC = Douglas Island Pink and Chum; NMFS = National Marine Fisheries Service; NSRA = Northern Southeast Regional Aquaculture Association.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

Appendix A18.–Estimates **(from sampled fish only)** of hatchery-produced Chinook salmon contributed to 46 Chinook salmon examined during the Elfin Cove marine boat sport fishery from 1 July to 1 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
Oregon	ODFW	Salmon River	09-30-53	1	1	0	2%
Washington	WDFW	Ringold Springs	63-10-11	1	16	252	36%
		TOTAL ALL REGIONS		2	17	252	37%

[a] ODFW = Oregon Department of Fish and Wildlife; WDFW = Washington Department of Fisheries and Wildlife.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

Appendix A19.–Age composition of Chinook salmon from selected Southeast Alaska sport fisheries, 2002.

				BROOD YEAR											
Sport				1999		1998		1997			1996		1995		Sample
Fishery	Season			0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	1.5	2.4	Size
Ketchikan	4/29–6/23[a]	Males	n				7		19		6				32
	(spring)		Percent				21.9		59.4		18.8				
			SE[b]				7.4		8.8		7.0				
		Females	n			1	1		15		11				28
			Percent			3.6	3.6		53.6		39.3				
			SE[b]			3.6	3.6		9.6		9.4				
		Total[c]	n			3	24	3	64		41	1	1		137
			Percent			2.2	17.5	2.2	46.7		29.9	0.7	0.7		
			SE[b]			1.3	3.3	1.3	4.3		3.9	0.7	0.7		
Ketchikan	6/24–9/29	Males	n				10		6	1					17
	(summer)		Percent				58.8		35.3	5.9					
			SE[b]				12.3		11.9	5.9					
		Females	n				6		6		4				16
			Percent				37.5		37.5		25.0				
			SE[b]				12.5		12.5		11.2				
		Total[c]	n	3	1	4	49		33	1	19				110
			Percent	2.7	0.9	3.6	44.5		30.0	0.9	17.3				
			SE[b]	1.6	0.9	1.8	4.8		4.4	0.9	3.6				
Juneau	4/29–7/01	Males	n			1	5		48		29			1	84
	(spring)		Percent			1.2	6.0		57.1		34.5			1.2	
			SE[b]			1.2	2.6		5.4		5.2			1.2	
		Females	n				2		43		48				93
			Percent				2.2		46.2		51.6				
			SE[b]				1.5		5.2		5.2				
		Total[c]	n			1	14		161		105	1	1	1	284
			Percent			0.4	4.9		56.7		37.0	0.4	0.4	0.4	
			SE[b]			0.4	1.3		2.9		2.9	0.4	0.4	0.4	
Juneau	7/02–9/29	Males	n			1	2								3
	(summer)		Percent			33.3	66.7								
			SE[b]			33.3	33.3								
		Females	n				6		9		2				17
			Percent				35.3		52.9		11.8				
			SE[b]				11.9		12.5		8.1				
		Total[c]	n	1		4	92	1	45		5				148
			Percent	0.7		2.7	62.2	0.7	30.4		3.4				
			SE[b]	0.7		1.3	4.0	0.7	3.8		1.5				

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Appendix A19.–Page 2 of 2.

Sport Fishery	Season			BROOD YEAR 1999 0.2	1.1	1998 0.3	1.2	1997 0.4	1.3	2.2	1996 1.4	2.3	1995 1.5	2.4	Sample Size
Juneau Golden North Derby	8/23–8/26	Total[c]	n	1		3	61		22						87
			Percent	1.1		3.4	70.1		25.3						
			SE[b]	1.1		2.0	4.9		4.7						
Petersburg	5/06–7/07	Males	n				1		3		28			1	33
			Percent				3.0		9.1		84.8			3.0	
			SE[b]				3.0		5.1		6.3			3.0	
		Females	n						1		12				13
			Percent						7.7		92.3				
			SE[b]						7.7		7.7				
		Total[c]	n				1		11		86			2	100
			Percent				1.0		11.0		86.0			2.0	
			SE[b]				1.0		3.1		3.5			1.4	
Wrangell	4/29–6/30	Males	n				2		6		32			1	41
			Percent				4.9		14.6		78.0			2.4	
			SE[b]				3.4		5.6		6.5			2.4	
		Females	n				2		8		41			1	52
			Percent				3.8		15.4		78.8			1.9	
			SE[b]				2.7		5.1		5.7			1.9	
		Total[c]	n				4		20		94			2	120
			Percent				3.3		16.7		78.3			1.7	
			SE[b]				1.6		3.4		3.8			1.2	
Gustavus	6/03–9/15	Males	n			4	4		6						14
			Percent			28.6	28.6		42.9						
			SE[b]			12.5	12.5		13.7						
		Females	N			1	10		13		1				25
			Percent			4.0	40.0		52.0		4.0				
			SE[b]			4.0	10.0		10.2		4.0				
		Total[c]	N			10	24	3	34		2				73
			Percent			13.7	32.9	4.1	46.6		2.7				
			SE[b]			4.1	5.5	2.3	5.9		1.9				
Elfin Cove	7/01–9/01	Males	N								1				1
			Percent								100.0				
			SE[b]								0				
		Females	n												0
			Percent												
			SE[b]												
		Total[c]	N	3		9	2	4	5		7		1		31
			Percent	9.7		29.0	6.5	12.9	16.1		22.6		3.2		
			SE[b]	5.4		8.3	4.5	6.1	6.7		7.6		3.2		

[a] Ketchikan season strata modified to 4/29–6/23 and 6/24–9/29 due to derby fish being sampled disproportionately high during late May to mid-June 2001.

[b] SE in percent.

[c] Includes both sexed and unsexed Chinook salmon.

Appendix A20.–Mean length-at-age in millimeters (from tip of snout to fork of tail) by sex for Chinook salmon from selected Southeast Alaska sport fisheries, 2002.

Sport Fishery			BROOD YEAR 2000	1999		1998		1997			1996		1995		Sample Size
			0.1	0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	1.5	2.4	
Ketchikan	Males	Mean				790	767		903	700	1,061				
		SE				0	12		12	0	30				
		n				1	17		25	1	6				50
	Females	Mean					772		897		977				
		SE					10		11		15				
		n					7		21		15				43
	Total[a]	Mean		762	660	845	765	960	906	700	1,008	965	1,020		
		SE		17		19	6	55	5	0	9	0	0		
		n		3	1	8	80	3	131	1	77	1	1		306
Juneau	Males	Mean				865	688		867		935			980	
		SE				40	15		9		12			0	
		n				2	7		48		29			1	87
	Females	Mean					753		849		937				
		SE					15		8		8				
		n					8		50		50				108
	Total[a]	Mean				865	720	1,040	854		920	940	1,110	980	
		SE				40	9	0	5		8	0	0	0	
		n				2	44	1	181		53	1	1	1	284
Juneau Derby	Total[a]	Mean		690		848	742		833						
		SE		0		15	5		12						
		n		1		3	61		22						87
Petersburg	Males	Mean					750		957		974				
		SE					0		22		16				
		n					1		3		28				32
	Females	Mean							856		953				
		SE							16		24				
		n							7		46				53
	Total[a]	Mean					750		893		962				
		SE					0		19		14				
		n					1		11		86				98
Wrangell	Males	Mean					720		882		949			910	
		SE					0		28		11			0	
		n					1		5		32			1	39
	Females	Mean			780		790		849		907			870	
		SE			0		0		20		9			0	
		n			1		1		8		41			1	52
	Total[a]	Mean			780		755		865		921			890	
		SE			0		35		13		6			20	
		n			2		2		19		94			2	119

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Appendix A20.–Page 2 of 2.

Sport Fishery			BROOD YEAR 2000	1999		1998		1997			1996		1995		Sample Size
			0.1	0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	1.5	2.4	
Gustavus	Males	Mean				829	744		796						
		SE				43	26		33						
		n				4	4		6						14
	Females	Mean				780	744		769		990				
		SE				0	23		19		0				
		n				1	10		13		1				25
	Total[a]	Mean				820	740	960	806		915				
		SE				18	13	20	13		75				
		n				10	22	2	32		2				68
Elfin Cove	Males	Mean									1,195				
		SE									0				
		n									1				1
	Females	Mean													
		SE													
		n													0
	Total[a]	Mean		750		857	790	961	843		916		970		
		SE		5		19	0	37	19		53		0		
		n		2		9	1	4	3		7		1		27

[a] Includes sexed and unsexed Chinook salmon.

Appendix A21.–Numbers of coho salmon examined for coded wire tags in Southeast Alaska marine boat sport fisheries in 2002.

Sport fishery	Seasonal period	Estimated Harvest	Number sampled	Percent sampled
Creel surveys				
Ketchikan	4/29–8/04 non-derby	10,467	2,656	25
	Derby entered[a]	0	0	0
	Derby not entered[a]	14	3	21
	8/05–9/29 non-derby	23,408	7,090	30
	Total	33,889	9,749	29
Juneau	4/29–8/04 non-derby	5,688	888	16
	8/05–9/29 non-derby	13,943	3,536	25
	Derby entered[b]	4,824	4,824	100
	Derby take-home[b]	1,818	476	26
	Total	26,273	9,724	37
Sitka	4/29–8/04 non-derby	24,762	6,627	27
	Derby entered[c]	0	0	0
	Derby take-home[c]	0	0	0
	8/05–9/29 non-derby	21,392	6,814	32
	Total	46,154	13,441	29
	Creel survey totals	106,316	32,914	31
Catch sampling programs				
Craig/Klawock	5/06–9/15		6,567	
Petersburg[d]	5/06–7/07		9	
Wrangell[d]	4/29–6/30		0	
Gustavus	6/03–9/15		2,884	
Elfin Cove	7/01–9/01		324	
	Catch sample total		9,784	
	Total sampled		42,698	

[a] Derby held 26–28 May, 2–3 June, and 9–10 June.

[b] Derby held 17–19 August.

[c] Derby held 26–28 May and 2–3 June.

[d] Catch sampling in Petersburg and Wrangell in 2002 ended before the start of the coho salmon fishery season.

Appendix A22.–Estimates of hatchery-produced and wild tagged coho salmon contributed to the Ketchikan marine boat sport fishery, 29 April–29 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[b]	Con[c]	Variance[d]	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS												
British Columbia	CDFO	Fulton River	18-30-15	1	4	15				1	4	15
		Snootli Creek	18-44-46				1	5	23	1	5	23
		Toboggan Creek	18-30-18	1	3	7				1	2	7
			18-30-21	1	5	25				1	5	25
			18-35-44	1	5	24				1	5	24
		B.C. total		4	17	75	1	5	23	5	22	98
Alaska	KTHC	Deer Mountain	04-01-69	45	365	7,871	1	7	47	46	372	7,918
			04-01-70	56	682	20,816	7	75	875	63	757	21,691
			04-43-16	13	110	1,214	1	8	51	14	118	1,265
	MIC	Tamgas Creek	47-01-10				1	96	9,164	1	96	9,164
	PWHA	Klawock River	50-31-35				1	68	4,592	1	68	4,592
	SSRA	Burnett Inlet	04-02-78	2	66	2,174				2	66	2,174
			04-02-79	3	65	1,537				3	65	1,537
		Nakat Inlet	04-02-71				5	164	5,635	5	164	5,635
			04-02-72				1	39	1,481	1	39	1,481
		Neets Bay	04-01-89				12	1,542	219,894	12	1,542	219,894
			04-01-90				9	557	37,696	9	557	37,696
			04-01-91				7	472	34,256	7	472	34,256
			04-01-92				6	389	26,634	6	389	26,634
			04-01-93				10	573	36,391	10	573	36,391
			04-01-94				17	2,389	417,771	17	2,389	417,771
			04-01-95				10	639	46,242	10	639	46,242
			04-01-96				10	685	52,741	10	685	52,741
			04-02-69				11	773	60,883	11	773	60,883
			04-02-73				13	968	80,479	13	968	80,479
			04-02-74				10	688	52,560	10	688	52,560
		Whitman Lake	04-02-68				5	287	17,181	5	287	17,181
			04-02-75	1	26	654	1	25	620	2	51	1,273
		Alaska total		120	1,314	65,177	138	10,444	2,238,377	258	11,758	2,303,554
		TOTAL ALL REGIONS		124	1,331	66,615	139	10,449	2,238,815	263	11,780	2,305,430
WILD STOCKS[e]												
British Columbia	CDFR	Lamach River	08-29-31	2	25	315				2	25	315
		B.C. total		2	25	315				2	25	315
Alaska	ADFG	Hugh Smith Lake	04-46-58	2	11	47	2	8	20	4	19	67
		Slippery Creek	04-02-86	1	12	131				1	12	131
		Unuk River	04-02-89				3	307	32,040	3	307	23,040
			04-02-90				7	694	72,705	7	694	72,705
			04-02-92	1	126	15,810	1	86	7,333	2	212	23,143
		Alaska total		4	149	15,998	13	1,095	118,898	17	1,244	134,896
		WILD STOCK TOTAL		6	174	16,351	13	1,095	118,898	19	1,269	135,249

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[a] CDFO = Canada Department of Fisheries and Oceans; KTHC = Ketchikan Tribal Hatchery Corporation; MIC = Metlakatla Indian Community; PWHA = Prince of Wales Hatchery Association; SSRA = Southern Southeast Regional Aquaculture Association; CDFR = Canada Department of Fisheries and Oceans Research; ADFG = Alaska Department of Fish and Game.

[b] Rec = Number of fish recovered of noted tag code.

[c] Con = Estimated harvest (contribution) of the release of the noted tag code.

[d] Variance = Variance of estimated harvest of the release of the noted tag code.

[e] Alaskan wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds. Non-alaskan wild stock recoveries were only expanded by using the sampling fraction since tagging fractions were unavailable.

Appendix A23.–Estimates of hatchery-produced and wild tagged coho salmon contributed to the Juneau marine boat sport fishery, 29 April–29 September 2002.

				Non-derby 6/24–8/04			Non-derby 8/05–9/29			Derby[a]			Total		
Region	Agency[b]	Release site	Tag code	Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS															
Alaska	DIPC	Macaulay	04-03-89				13	521	36,611	30	337	4,889	43	858	41,500
			04-03-90				11	689	95,215	23	282	4,733	34	971	99,948
			04-03-91	1	91	8,215	17	775	56,252	23	335	8,041	41	1,201	72,508
			04-03-92	1	162	25,948	5	415	38,981	16	384	14,042	22	961	78,971
	NSRA	Hidden Falls	04-48-53	1	302	90,714				1	36	1,256	2	338	91,970
			04-49-02	1	237	55,759				1	28	767	2	265	56,526
			04-49-18							2	40	764	2	40	764
			04-49-19							1	168	26,039	1	168	26,039
	SSRA	Crystal Lake	04-01-73							1	6	28	1	6	28
		Total		4	792	197,114	46	2,400	375,603	98	1,616	70,368	148	4,808	643,085
WILD STOCKS[f]															
Alaska	ADFG	Auke Creek	04-01-68				5	20	95	16	24	40	21	44	135
		Berners River	04-40-21							4	31	214	4	31	214
			04-46-59				9	280	11,970	2	15	107	11	295	12,077
		Chilkat River	04-02-98				2	2,371	4,394,787	2	165	14,030	4	2,536	4,408,817
			04-03-96							1	82	7,015	1	82	7,015
			04-03-97							1	82	7,015	1	82	7,015
		Stikine River	04-04-64				1	8	5,747				1	8	5,747
		Taku River	04-02-93				3	641	233,855	4	245	27,791	7	886	261,647
			04-02-94				2	428	155,904	2	122	13,896	4	550	139,799
			04-04-54	1	415	179,189	5	1,069	389,759	13	795	90,321	19	2,279	659,269
			04-04-55	1	415	179,189	5	1,069	389,759	6	367	41,687	12	1,851	610,634
			04-04-56	1	415	179,189				8	489	55,582	9	904	234,771
		Wild Stock Total		3	1,244	537,567	32	5,886	5,720,522	59	2,417	258,156	94	9,547	6,516,245

[a] Derby held on 23–26 August 2002.

[b] DIPC = Douglas Island Pink and Chum; NSRA = Northern Southeast Regional Aquaculture Association; SSRA = Southern Southeast Regional Aquaculture Association; ADFG = Alaska Department of Fish and Game.

[c] Rec = Number of fish recovered of noted tag code.

[d] Con = Estimated harvest (contribution) of the release of the noted tag code.

[e] Variance = Variance of estimated harvest of the release of the noted tag code.

[f] Wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds.

Appendix A24.–Estimates of hatchery-produced and wild tagged coho salmon contributed to the Sitka marine boat sport fishery, 29 April–29 September 2002.

				Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
Region	Agency[b]	Release site	Tag code	Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS												
Alaska	AKI	Port Armstrong	04-03-79				3	63	1,810	3	63	1,810
			04-03-80	3	149	9,161	3	112	4,168	6	261	13,329
			04-03-81	2	55	1,539	1	22	475	3	77	2,014
			04-03-82	1	12	124	1	9	80	2	21	205
			04-03-83	1	40	1,540	3	114	4,383	4	154	5,923
			04-03-84	2	83	3,612	2	52	1,359	4	135	4,972
			04-03-85				4	74	1,516	4	74	1,516
			04-03-86				2	36	641	2	36	641
			04-03-87	3	178	11,464	5	295	21,134	8	473	32,598
			04-03-88	3	165	10,007	3	284	38,300	6	449	48,307
	DIPC	Macaulay	04-03-90	1	34	1,104				1	34	1,104
			04-03-91	1	35	1,195				1	35	1,195
			04-03-92				1	51	2,507	1	51	2,507
	KAKE	Gunnuk Creek	04-01-04-0109	1	6	35				1	6	35
	KTHC	Deer Mountain	04-01-69	2	18	151	1	6	29	3	24	179
			04-01-70	1	11	114				1	11	114
	MIC	Tamgas Creek	47-01-10				1	61	3,651	1	61	3,651
			47-01-12				1	138	18,897	1	138	18,897
	NSRA	Hidden Falls	04-01-01-1011	2	82	3,388				2	82	3,388
			04-48-53	1	116	13,248	2	238	28,963	3	354	42,211
			04-49-02	4	414	47,596	3	261	23,148	7	675	70,739
			04-49-04				1	34	1,134	1	34	1,134
			04-49-18	3	193	13,825	1	66	4,334	4	259	18,159
		Medvejie	04-48-62	1	21	418	9	158	3,473	10	179	3,891
			04-49-01	6	130	3,191	10	170	3,520	16	300	6,711
			04-49-16	7	27	104	25	81	322	32	108	426
		Medvejie CIF	04-01-03-1402	2	304	46,461				2	304	46,461
	PWHA	Klawock River	50-31-30				1	27	683	1	27	683
			50-31-42	1	49	2,337				1	49	2,337
	SJ	Sheldon Jackson	04-47-23	6	25	106	13	37	107	19	62	213
	SSRA	Burnett Inlet	04-01-04-0304	1	138	18,797				1	138	18,797
			04-01-04-0305	1	93	8,570				1	93	8,570
			04-02-78	2	76	3,154				2	76	3,154
		Crystal Lake	04-01-72	1	35	1,176				1	35	1,176
		Nakat Inlet	04-02-70	2	69	2,368	2	56	1,524	4	125	3,892
			04-02-71	1	30	894	1	25	587	2	55	1,481
			04-02-72	2	69	2,373	2	56	1,527	4	125	3,900
		Neets Bay	04-01-89	3	396	54,468	7	790	98,571	10	1,186	153,039
			04-01-90				2	100	5,208	2	100	5,208
			04-01-92	1	84	6,990	3	188	12,003	4	272	18,993
			04-01-93	1	76	5,650	3	169	9,695	4	245	15,345

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Appendix A24.–Page 2 of 2.

Region	Agency[b]	Release site	Tag code	Non-derby 6/24–8/04			Non-derby 8/05–9/29			Total		
				Rec[c]	Con[d]	Variance[e]	Rec	Con	Variance	Rec	Con	Variance
HATCHERY STOCKS (cont.)												
Alaska	SSRA	Neets Bay	04-01-94	2	324	53,147	3	408	57,011	5	732	110,158
			04-01-95	1	69	4,636	3	183	11,348	4	252	15,984
			04-01-96				2	122	7,347	2	122	7,347
			04-02-69	4	301	24,559	3	288	33,484	7	589	58,043
			04-02-73				2	146	10,885	2	146	10,885
			04-02-74	1	71	4,921				1	71	4,921
		Whitman Lake	04-02-68				4	229	13,545	4	229	13,545
			04-02-76				2	63	1,991	2	63	1,991
			04-02-77	1	31	909	3	126	6,287	4	157	7,196
		Total		78	4,009	932,992	138	5,338	881,518	216	9,347	1,814,510
WILD STOCKS												
British Columbia	AFSP	Zolzap Creek	28-01-06	1	8	66				1	8	66
			28-01-07	1	8	67	2	13	71	3	21	138
	CDFR	Lamach River	08-29-37	1	10	83	1	10	88	2	20	171
			B.C. Total	3	26	205	3	23	164	6	49	369
Alaska	ADFG	Auke Creek	04-01-68	1	4	13				1	4	13
		Berners River	04-46-59	1	25	592	1	20	388	2	45	980
		Chilkat River	04-02-98	1	340	115,126				1	340	115,126
		Ford Arm Lake	04-43-52				1	29	803	1	29	803
			04-46-56	13	364	17,593	21	581	23,614	34	945	41,207
		Hugh Smith L.	04-45-28	1	6	30	5	25	161	6	31	191
			04-46-58	1	5	29	2	10	64	3	15	93
		Nakwasina R.	04-03-67	1	14	201	2	30	594	3	44	795
			04-03-68				1	15	297	1	15	297
			04-04-66	2	27	403	2	30	594	4	58	997
		Slippery Creek	04-02-86	4	36	343	3	22	155	7	58	498
			04-02-87	1	9	89	1	7	52	2	16	137
		Stikine River	04-04-62	1	7	5,031	2	11	7,874	3	18	12,904
		Taku River	04-02-94	1	205	41,714				1	205	41,714
		Unuk River	04-02-90				1	78	6,025	1	78	6,025
		Alaska wild stock total		28	1,042	206,609	42	859	45,517	70	1,901	252,126
		All regions wild stock total		31	1,068	209,043	45	882	46,453	76	1,950	255,496

[a] AKI = Armstrong-Keta, Inc; DIPC = Douglas Island Pink and Chum, Inc; KAKE = Kake Non-Profit Fisheries Corp; KTHC = Ketchikan Tribal Hatchery Corporation; MIC = Metlakatla Indian Community; NSRA = Northern Southeast Regional Aquaculture Association; PWHA = Prince of Wales Hatchery Association; SJ = Sheldon Jackason College; SSRA = Southern Southeast Regional Aquaculture Association; AFSP = Aboriginal Fishery Strategy Program; CDFR = Canada Department of Fisheries and Oceans Research; ADFG = Alaska Department of Fish and Game.

[b] Rec = Number of fish recovered of noted tag code.

[c] Con = Estimated harvest (contribution) of the release of the noted tag code.

[d] Variance = Variance of estimated harvest of the release of the noted tag code.

[e] Alaskan wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds. Non-alaskan wild stocks were only expanded by the sampling fraction since tagging fractions were unavailable.

Appendix A25.–Estimates (from sampled fish only) of hatchery-produced and wild tagged coho salmon contributed to 6,567 salmon examined during the Craig/Klawock marine boat sport fishery, 6 May–15 September 2002.

Region	Agency[a]	Hatchery/release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
HATCHERY STOCKS							
British Columbia	CDFO	Toboggan Creek	18-35-44	1	1	0	0%
		B.C. total		1	1	0	0%
Alaska	AKI	Port Armstrong	04-03-80	1	13	152	0%
	NSRA	Hidden Falls	04-49-02	1	30	872	0%
		Medvejie	04-19-16	1	1	0	0%
	PWHA	Klawock River	50-31-34	6	98	1,500	1%
			50-31-35	1	17	271	0%
			50-31-36	2	38	699	1%
			50-31-37	2	33	513	1%
			50-31-38	5	82	1,248	1%
			50-31-39	3	50	768	1%
			50-31-40	3	50	777	1%
			50-31-41	1	16	244	0%
			50-31-42	4	65	981	1%
			50-31-43	2	33	502	0%
	SSRA	Burnett Inlet	04-01-04-0304	1	24	569	0%
		Nakat Inlet	04-02-70	3	30	272	0%
			04-02-71	1	10	91	0%
			04-02-72	1	10	91	0%
		Neets Bay	04-01-89	1	40	1,554	1%
			04-01-92	1	22	448	0%
			04-01-93	1	19	360	0%
			04-01-94	1	47	2,165	1%
			04-01-96	1	22	454	0%
			04-02-69	1	23	519	0%
			04-02-74	1	23	524	0%
		Whitman Lake	04-02-75	1	9	78	0%
		Alaska total		46	805	15,652	12%
		TOTAL ALL REGIONS		47	806	15,652	12%
WILD STOCKS[e]							
BC	CDFR	Lachmach River	08-29-31	1	3	7	0%
			08-29-37	1	3	7	0%
	BC Total			2	6	14	0%
Alaska	ADFG	Hugh Smith Lake	04-45-28	3	4	1	0%
			04-46-58	1	1	0	0%
		Alaska total		4	5	1	0%
			WILD STOCK TOTAL	6	11	15	0%

[a] CDFO = Canada Department of Fisheries and Oceans; AKI = Armstrong-Keta, Inc; NSRA = Northern Southeast Regional Aquaculture Association; PWHA = Prince of Wales Hatchery Association; SSRA = Southern Southeast Regional Aquaculture Association; CDFR = Canada Department of Fisheries and Oceans – Research; ADFG = Alaska Department of Fish and Game.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to the sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

[e] Alaskan wild stock contribution estimates were expanded by using tagging fractions estimated from the ratio of marked to total adults on the spawning grounds. Non-alaskan wild stocks were only expanded by the sampling fraction since tagging fractions were unavailable.

Appendix A26.–Estimates (from sampled fish only) of hatchery-produced coho salmon contributed to 2,884 Chinook salmon examined during the Gustavus marine boat sport fishery from 3 June to 1 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
Alaska	AKI	Port Armstrong	04-03-86	1	7	40	0%
	DIPC	Macaulay	04-03-89	3	30	268	1%
			04-03-90	4	42	397	1%
			04-03-91	4	44	431	2%
			04-03-92	1	19	354	1%
	NSRA	Hidden Falls	04-48-53	5	180	6,280	6%
			04-49-02	4	113	3,066	4%
			04-49-18	1	20	382	1%
			04-49-19	1	35	1,159	1%
		Alaska total		24	490	12,377	17%
		TOTAL ALL REGIONS		24	490	12,377	17%
			WILD STOCKS[e]				
Alaska	ADFG	Berners River	04-40-21	2	15	104	1%
			04-46-59	5	39	266	1%
		Chilkat River	04-03-97	1	82	6,681	3%
		Ford Arm Lake	04-46-56	1	9	67	0%
		Taku River	04-04-55	4	198	10,036	7%
		Alaska total		13	343	17,154	12%
			WILD STOCK TOTAL	13	343	17,154	12%

[a] AKI = Armstrong-Keta, Inc; DIPC = Douglas Island Pink and Chum, Inc; NSRA = Northern Southeast Regional Aquaculture Association; ADFG = Alaska Department of Fish and Game.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

Appendix A27.–Estimates (from sampled fish only) of hatchery-produced Chinook salmon contributed to 324 coho salmon examined during the Elfin Cove marine boat sport fishery from 1 July to 1 September 2002.

Region	Agency[a]	Hatchery/ release site	Tag code	Rec[b]	Con[c]	Variance[d]	Relative contribution
Alaska	DIPC	Macaulay	04-03-91	1	11	108	3%
	KAKE	Gunnuk Creek	04-01-04-0407	1	1	0	0%
		Alaska total		2	12	108	4%
		TOTAL ALL REGIONS		2	12	108	4%
			WILD STOCKS[e]				
Alaska	ADFG	Berners River	04-46-59	1	8	52	2%
		Ford Arm Lake	04-46-56	1	9	67	3%
		Hugh Smith Lake	04-46-58	1	1	0	0%
		Slippery Creek	04-02-87	1	2	3	1%
		Taku River	04-02-93	1	50	2,405	15%
		Alaska total		5	70	2,527	22%
			WILD STOCK TOTAL	5	70	2,527	22%

[a] DIPC = Douglas Island Pink and Chum, Inc; KAKE = Kake Non-Profit Fisheries Corp; ADFG = Alaska Department of Fish and Game.

[b] Rec = Recovered number of fish of noted tag code from the sampled harvest.

[c] Con = Contribution to sampled harvest of the release of the noted tag code.

[d] Variance = Variance of the estimated contribution of the release of the noted tag code.

APPENDIX B: DATA FILES

Appendix B1.–Computer data files and analysis programs developed for the 2002 Southeast Alaska marine boat sport fishery survey.

Effort, Catch, and Harvest Estimation Files (in KMC02EST.ZIP, JMC02EST.ZIP, PMC02SAM.ZIP, SMC02EST.ZIP, WMC02SAM.ZIP, CMC02SAM.ZIP, KLAWOCK02.ZIP, GMC02SAM.ZIP, AND EMC02SAM.ZIP))	
a-0810002002.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Ketchikan, 2002
b-0752002002.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Klawock, 2002
b-0760002002.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Craig, 2002
c-0082002002.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Petersburg, 2002
c02wgm.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Wrangell, 2002
c02sim.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Sitka, 2002
c02jnm.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Juneau, 2002
c02gvm.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Gustavus, 2002
c02elm.dta	Data file (ASCII) containing interview information recorded on mark-sense interview forms (PORT SAMPLING INTERVIEW VERSION 1.0) recorded at Elfin Cove, 2002
aMS02.SAS	SAS programs to create basic interview SAS save files from mark-sense data files. 'a' stands for the letter of each site respectively: K for Ketchikan, P for Petersburg, W for Wrangell, S for Sitka, J for Juneau, C for Craig/Klawock, G for Gustavus, and E for Elfin Cove.
aMC02ESS.SAS	SAS programs to create revised interview SAS save files from files created by aMS02.SAS. Revised files have stratification information added to them, have non fin-fish (i.e., shellfish) data removed, and/ or have multi-line interviews collapsed to one record per interview. See above for explanation of 'a'.
aMC02MSM.SAS	SAS programs to create SAS save files with only the sampling information associated with each sample for each survey from files created by aMC02ESS.SAS. See above for explanation of 'a'.
aMC02EST.SAS	SAS programs to estimate effort, catch, and harvest with associated variances using SAS save files created by aMC02ESS.SAS and aMC02MSM.SAS. Program operates on one species at a time as determined by inputs in temporary input data file 'SPECLIST.DAT'. See above for explanation of 'a'.
Coded Wire Tag Contribution Estimation Files (in CWT02.ZIP)	
SPRT_EXPNS02.XLS	Data file from tag lab with sampling information for each biweekly period at each fishery.
SFCON02.XLS	Data file from tag lab with recovery information for each adipose fin clipped coho and Chinook salmon sampled.
SEN02CWT.SAS	SAS program to do basic contribution estimates.
SEN02CO1.SAS	SAS program to summarize contributions across tag codes for main tables.
SEN02CWP.SAS	SAS program to list tags, contributions, and variances for appendices.
SEN02CW3.SAS	SAS program to summarize contributions at ports with catch sampling programs.
WILD_CWT_2002.XLS	EXCEL file to do wild stock coho contribution estimates.
WILD02CWT.SAS	SAS program to do wild stock contribution estimates.
WILD02OUT.SAS	SAS program to summarize wild stock contributions by port for main tables.
Age-weight-length (AWL) Files (in CHI02AWL.ZIP, HAL02AWL.ZIP, and LING02AWL.ZIP)	
CHIN_2002_AWL.XLS	Chinook data file for input to the SAS program.
REG_MAT02CHI.SAS LF_MAT02CHI.SAS	SAS programs to summarize Chinook salmon AWL data.
HALIBUT_2002_ALL.XLS	Halibut data file for input to the SAS program.
L_2002_HAL.SAS	SAS program to summarize halibut AWL data.
LINGCOD_2002_AWL.XLS	Lingcod data file for input to the SAS program.
LF_2002_LC.SAS	SAS program to summarize lingcod AWL data.

Note: Data files (*.dta) archived at Alaska Department of Fish and Game, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd., Anchorage, AK 99518-1599.